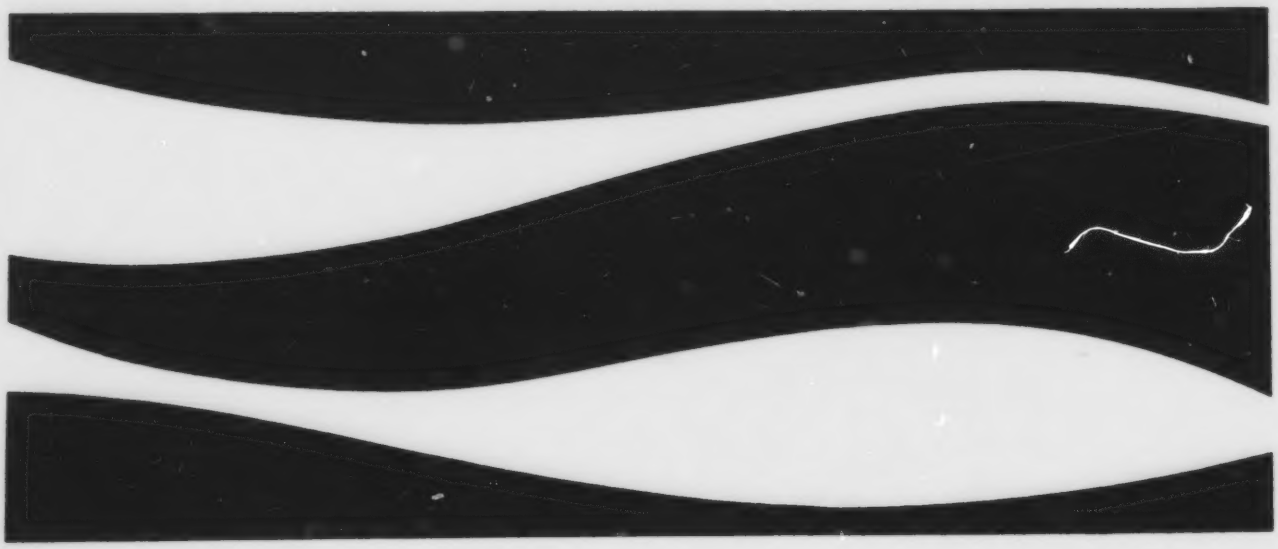
FISHERIES PRODUCTION STATISTICS OF BRITISH COLUMBIA 1990

Province of
British Columbia
Ministry of Agriculture,
Fisheries and Food

AQUACULTURE AND COMMERCIAL FISHERIES BRANCH, COMMERCIAL FISHERIES SECTION



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Province of
British Columbia

Ministry of
Agriculture, Fisheries
and Food

Victoria
British Columbia
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October 22, 1992

ERRATA

TO: ALL RECIPIENTS OF THE 1990 FISHERIES PRODUCTION STATISTICS OF BRITISH C[illegible]BIA

RE: Revisions to 1989 B.C. Halibut Wholesale Value

Please find enclosed revised "Table 1 - Quantity and Value of B.C. Fish Landings by Species 1989". Since the publication of the 1989 report it was learned that the landings of halibut at United States ports was erroneously included twice in the wholesale value on this table.

This error also affected Table 2 and the revised figures are noted and published in Table 2 of the enclosed 1990 Fisheries Production Statistics of British Columbia.

If you have any questions regarding these revisions, please contact me at 387-1160.

Yours truly,

Carmen Matthews
Fisheries Statistics Officer
Aquaculture and Commercial
Fisheries Branch

Encl.

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* * * * REVISED * * * *

TABLE 1 - QUANTITY AND VALUE OF B.C. FISH LANDINGS BY SPECIES 1989

	LANDED QUANTITY (Tonnes)	LANDED VALUE ($'000)	WHOLESALE VALUE ($'000)
SALMON[1]	84,894	256,100	586,880
SALMON MARICULTURE	11,883	59,739	72,418[2]
SUBTOTAL	96,777	315,839	659,298
HERRING[3]	41,008	76,320	157,782
HALIBUT[4]	4,659	18,696	27,401
GROUNDFISH			
DOGFISH	2,775	1,022	2,612
FLOUNDER	124	73	176
HAKE[5]	74,706	11,333	11,400
LINGCOD	3,980	2,869	7,735
PACIFIC COD	9,142	4,519	10,078
PACIFIC OCEAN PERCH	6,068	2,889	3,092
POLLOCK	434	63	1,016
ROCKFISH[6]	18,388	12,104	22,232
SABLEFISH	5,494	15,058	17,725
SKATE	353	45	172
SOLE	6,352	4,798	10,436
TURBOT	609	116[7]	609
OTHER GROUNDFISH	591[7]	428	9,120[8]
SUBTOTAL	129,016	55,317	96,403
SHELLFISH			
ABALONE[9]	48	1,151	1,222
CLAM	3,682	7,100	11,341
CRABS	1,522	6,089	8,619
GEODUCKS	3,965	12,572	15,275
OCTOPUS	217	703	527
OYSTERS	3,721	2,938	4,340
SEA URCHINS	3,268	2,651	12,198
SHRIMP & PRAWNS	3,119	9,900	15,338
OTHER SHELLFISH	1,695[10]	2,053[10]	3,448[11]
SUBTOTAL	21,237	45,157	72,308
OTHER SPECIES			
STURGEON	9	16	29
TUNA	180[12]	451[12]	594
OTHER	855[13]	1,606[13]	946[14]
SUBTOTAL	1,044	2,073	1,569
TOTAL	293,741	513,402	1,014,761

TABLE 1 - CONT'D - FOOTNOTES

1 Includes salmon roe. Wholesale value includes production derived from U.S. salmon.
2 Includes a small quantity of freshwater trout production.
3 Includes herring spawn on kelp.
4 Includes total landings at United States ports of 766 tonnes valued at $3,589,706.
5 Includes 66,102 tonnes of hake worth $10,225,000 delivered to foreign vessels in co-operative or joint venture fishing arrangements.
6 Includes reedi, greenies, other rockfish, red snapper and silver perch.
7 Includes non-food fish, idiotfish and shark.
8 Includes other groundfish, portions, sticks and specialities, fish meal n.e.s, fish oil n.e.s., and solubles n.e.s.
9 Includes horse clams.
10 Includes scallops, squid, mussels, gooseneck barnacles, crayfish, snails, sea cucumbers, plankton, and other shellfish n.e.s.
11 Includes squid, scallops, mussels, sea cucumbers, gooseneck barnacles, and other shellfish n.e.s.
12 Includes 35 tonnes of tuna worth $70,900 caught in U.S. and international waters and landed in Canada by Canadian fishermen.
13 Includes eulachons, smelt, hagfish, anchovies and other fish.
14 Includes eulachons, smelt, seaweed and floating kelp.

Note: Salmon is reported in standard form; i.e., net caught is reported in round weight and troll caught is reported dressed head-on; halibut is reported dressed head-off; all other fish are reported in round weight.

FISHERIES PRODUCTION STATISTICS

OF BRITISH COLUMBIA

1990

Commercial Fisheries Section
Aquaculture and Commercial Fisheries Branch
Ministry of Agriculture, Fisheries and Food
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FOREWORD

This is the tenth annual issue of the Fisheries Production Statistics of British Columbia to be published by the Province of British Columbia. As a result of the transfer of Commercial Fisheries to the Ministry of Agriculture and Fisheries in September of 1986, this issue is the fifth to be published by this Ministry. Prior to the 1981 edition, production statistics were published by the Department of Fisheries and Oceans, Canada dating back to 1951.

This report provides a summary of fish production statistics reported in the 1990 census of fish processing plants licensed in British Columbia. The format is similar to previous years in which the majority of the text and tables are dedicated to fish landings and production.

It should be noted that all information on fish landings and value is provided by the Department of Fisheries and Oceans. It includes direct vessel exports and estimates of year end bonus payments to fish harvesters. The harvest of non-farmed freshwater fish is not included in the report.

Information relating to licensing within the fishing, and fish processing sectors as well as price index are also provided. In this issue three new tables have been added. One table documents the quantity and value of salmon roe products by species and grade; the other two tables contain farmed salmon harvest and farm gate value data based on two independent surveys.

Also included in this issue is a section summarizing industry average recovery rates based upon data collected in surveys conducted in 1989 and 1984, and from information provided by Department of Fisheries and Oceans.

All quantity data are presented in tonnes, except where otherwise indicated, and values are shown in thousands of dollars. One tonne equals 2,204.6 pounds or 1,000 kilograms.

We would like to thank the many people in the industry and various agencies of both governments who contributed to this report. Special thanks to Lora Quan for her assistance in the preparation of the manuscript.

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July, 1992

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I. SUMMARY OF THE BRITISH COLUMBIA FISHING AND FISH PROCESSING INDUSTRIES - 1990

From the perspective of the overall British Columbia economy, the commercial fishing and fish processing sectors contributed significantly to the provincial gross domestic product. Commercial fishing is the fourth largest primary industry in the province after forestry, mining, and agriculture. The fish processing sector accounts for over 25 percent of all food manufacturing activity in the province. The wholesale value of British Columbia fish products accounted for over 30 percent of the total value of Canadian marine fish production which is estimated at $3.2 billion.

In 1990, the quantity of British Columbia fish landings increased by 7 percent from 293,741 tonnes in 1989 to 313,852 tonnes in 1990. The increase in overall landings was primarily attributed to an increase in groundfish and salmon (including mariculture) landings. Commercial salmon landings increased 9 percent to 92,466 tonnes, while salmon mariculture production increased to 15,486 tonnes, a 30 percent rise over 1989 levels. Herring landings rose slightly in 1990. British Columbia halibut landings decreased almost 20 percent and landings at U.S. ports dropped 73 percent. Combined groundfish fisheries showed an 8 percent increase in landed quantity, while the overall shellfish harvest remained relatively the same as in 1989. Co-operative or joint venture hake fishing arrangements with foreign nations displayed a moderate 5 percent increase in landed quantity.

The total landed value of British Columbia fisheries rose 9 percent from $513.4 million in 1989 to $558.6 million in 1990. This increase in total landed value can be attributed to an increase in the average landed price of herring, halibut and several of the groundfish species. The total landed value of herring rose 7 percent from $76.3 million in 1989 to $81.5 million in 1990. The total value of halibut landed in British Columbia increased 13 percent over 1989 from $18.7 million to $21.1 million, while the value of halibut landed at U.S. ports dropped 63 percent from $3.6 million in 1989 to only $1.3 million in 1990. Combined total landed value of all groundfish species rose a substantial 20 percent from $55.3 million in 1989 to $66.6 million in 1990. The total shellfish landed value increased a nominal 2 percent to $46 million. Co-operative or joint venture hake fishing arrangements with foreign nations displayed a moderate 7 percent increase in value.

The British Columbia fish processing sector generated a record total wholesale value of $1,032 million in 1990, a 2 percent increase over the previous year. In 1990, the wholesale value of commercially caught salmon declined 4 percent to $564.3 million, while the value of farmed salmon products increased 17 percent to $85.1 million. Herring wholesale values increased 7 percent in 1990 to $169.3 million. Halibut products generated $27.8 million in 1990 an increase of 1 percent over 1989. In 1990, the combined groundfish wholesale value was $116 million, a 20 percent increase over 1989. Shellfish products generated $68.7 million in 1990, a 5 percent drop from the previous year.

Regional fish processing activity was distributed much the same as in previous years. In 1990, approximately 70 percent of the total value of fish products originated from the Lower Mainland region, and 18 percent in the Prince Rupert area with the Vancouver Island and Sunshine Coast regions contributing 9 and 3 percent respectively. Total average employment, based on 1989 data, was 5,624 with 61 percent concentrated in the Lower Mainland area.

A total of 14,768 personal commercial fishing licences were issued in 1990 by the Department of Fisheries and Oceans, Pacific Region. This total includes 1,249 five-year licences, and 13,519 one-year licences. In addition, 7,035 five-year licences from previous years were valid during 1990, bringing the total number of eligible fish harvesters to 20,554. Excluding packers and processors a total of 6,185 vessels were licensed to fish commercially in British Columbia in 1990.

One hundred and ninety-two firms utilizing 160 plants reported processed fish production in 1990. This figure of 192 includes 49 companies that leased facilities or had fish custom-processed and 497 vessels that exported fresh fish directly to United States ports. In addition, production was reported by 19 salmon mariculture operations that marketed their own fish.

The provincial Aquaculture and Commercial Fisheries Branch issued 236 fish processing licences, 559 fish buying licences, 171 fishermen's vending licences, 119 oyster picking permits and 35 marine plant harvesting licences. The wild oyster harvest picked under permit is included in the overall oyster landings. A total of 156 tonnes of marine plants were harvested under permit, although the majority of it is included as finished herring roe on kelp product.

TABLE 1 - QUANTITY AND VALUE OF BC FISH LANDINGS BY SPECIES - 1990

	LANDED QUANTITY (Tonnes)	LANDED VALUE ($'000)	WHOLESALE VALUE ($'000)
SALMON[1]	92,466[2]	263,413[2]	564,290[3]
SALMON MARICULTURE	15,486	78,646	85,089
SUBTOTAL	107,952	342,059	649,379
HERRING[4]	41,280	81,473	169,273
HALIBUT[5]	3,784	21,065	27,763
GROUNDFISH			
DOGFISH	4,109	2,045	2,714
FLOUNDER	143	82	120
HAKE[6]	79,453	12,833	12,905
LINGCOD	5,054	3,667	9,241
PACIFIC COD	6,233	3,375	7,433
PACIFIC OCEAN PERCH	5,595	2,981	3,745
POLLOCK	676	185	1,492
ROCKFISH[7]	22,143	15,462	23,604
SABLEFISH	5,125	19,434	29,248
SKATE	183	37	96
SOLE	7,041	5,469	12,664
TURBOT	2,602	601	2,031
OTHER GROUNDFISH	440[8]	396[8]	10,743[9]
SUBTOTAL	138,797	66,567	116,036
SHELLFISH			
ABALONE	50	1,347	1,051
CLAM[10]	2,651	5,567	8,631
CRABS	2,167	9,311	11,281
GEODUCKS	3,992	10,582	16,152
OCTOPUS	197	657	406
OYSTERS	4,547	3,613	4,595
SEA URCHINS	3,639	2,901	10,680
SHRIMP & PRAWNS	2,701	9,643	11,996
OTHER SHELLFISH	1,577[11]	2,394[11]	3,861[12]
SUBTOTAL	21,521	46,015	68,653
OTHER SPECIES			
STURGEON	9	16	40
TUNA	275	830	901
OTHER	234[13]	564[13]	441[14]
SUBTOTAL	518	1,410	1,382
TOTAL	313,852	558,589	1,032,486

TABLE 1 - CONT'D - FOOTNOTES

1 Includes salmon roe. Wholesale value includes production derived from U.S. salmon.
2 Salmon mariculture landed quantity based on B.C. Salmon Farmers Association data. Landed value is derived using average price data from MAFF, Annual Aquaculture Statistical Reports.
3 Includes a small quantity of freshwater trout production.
4 Includes herring spawn on kelp.
5 Includes total halibut landings at United States ports of 207 tonnes valued at $1,314,607.
6 Includes 69,293 tonnes of hake worth $10,915,796 delivered to foreign vessels in co-operative or joint venture fishing arrangements.
7 Includes reedi, greenies, other rockfish, red snapper and silver perch.
8 Includes non-food fish, idiotfish and shark.
9 Includes "other groundfish", "other fish", portions, sticks and specialities, fish meal n.e.s, fish oil n.e.s., and solubles n.e.s.
10 Includes horse clams as well as 43 tonnes of mussels and clams from aquaculture leases worth $150,000.
11 Includes scallops, squid, gooseneck barnacles, crayfish, snails, sea cucumbers, plankton, and other shellfish n.e.s.
12 Includes squid, scallops, sea cucumbers, gooseneck barnacles, plankton and other shellfish n.e.s.
13 Includes eulachons, smelt, hagfish, anchovies and other fish.
14 Includes eulachons, smelt, hagfish, mackerel and floating kelp.

Note: Salmon is reported in standard form; i.e., net caught is reported in round weight and troll caught is reported dressed head-on; farmed salmon is reported in round weight; halibut is reported dressed head-off; all other fish are reported in round weight.

TABLE 2 - LANDED AND WHOLESALE VALUE OF FISH AND FISH PRODUCTS IN B.C.

1979 - 1990

	Excludes halibut and tuna landed by B.C. fish harvesters at U.S. ports and hake sold to foreign processors.		Includes halibut and tuna landed by B.C. fish harvesters at U.S. ports and hake sold to foreign processors.			
	LANDED VALUE ($'000)	WHOLESALE VALUE ($'000)	LANDED VALUE ($'000)	% CHANGE	WHOLESALE VALUE ($'000)	% CHANGE
1979	330,019	563,181	332,972	+ 33	566,134	+ 9
1980	180,529	402,191	184,108	- 45	405,770	- 28
1981	232,358	523,754	236,156	+ 28	526,928	+ 30
1982	235,519	461,159	241,205	+ 2	466,845	- 11
1983	203,094	465,090	209,772	- 13	471,768	+ 1
1984	236,028	460,036	242,930	+ 16	466,938	- 1
1985	372,324 [1]	722,243	377,646	+ 55	727,565	+ 56
1986[2]	394,525	759,341	404,687	+ 7	769,410	+ 6
1987[2]	443,203	797,541	455,168	+ 12	809,206	+ 5
1988[2]	560,736	987,406	572,643	+ 26	998,909	+ 23
1989[2]	499,516	1,000,946 [3]	513,402	- 10	1,014,761 [3]	+ 2
1990[2]	546,358	1,021,570	558,589	+ 9	1,032,486	+ 2

1 Includes tuna caught by Canadian fishermen in U.S. waters and landed in Canada.
2 Includes the value of farmed salmonid production.
3 Revised data.

TABLE 3 - DISTRICT CATCH BY SPECIES - 1990 (LANDED WEIGHT IN TONNES)

Species	North[1] Coast	South Coast	Fraser Area	Total	Landed Value ($'000)
Chinook	1,887	2,581	120	4,588	20,484
Sockeye	6,847	20,903	8,111	35,861	160,734
Coho	3,950	5,231	40	9,221	28,065
Pink	19,001	6,611	4	25,616	26,981
Chum	8,822	7,691	617	17,130	27,053
Steelhead	41	3	1	45	83
Salmon Subtotal	40,548	43,020	8,893	92,46.	263,400
Salmon Roe	4	1	-	5	13
TOTAL SALMON[2]	40,552	43,021	8,893	92,466	263,413
Herring	22,292	18,764	-	41,056	73,169
Herring Spawn on Kelp	191	33	-	224	8,304
TOTAL HERRING	22,483	18,797	-	41,280	81,473
HALIBUT[3]	2,932	645	-	3,577	19,750
Dogfish	656	3,339	114	4,109	2,045
Flounder	66	77	-	143	82
Hake[4]	-	7,313	2,847	10,160	1,917
Ling Cod	1,914	3,140	-	5,054	3,667
Pacific Cod	3,726	2,507	-	6,233	3,375
Pacific Ocean Perch	3,988	1,607	-	5,595	2,981
Pollock	308	337	31	676	185
Rockfish[5]	10,507	11,631	5	22,143	15,462
Sablefish	3,037	2,088	-	5,125	19,434
Skate	148	34	1	183	37
Soles	4,177	2,862	2	7,041	5,469
Turbot	1,330	1,272	-	2,602	601
Other Groundfish[6]	193	200	47	440	396
TOTAL GROUNDFISH	30,050	36,407	3,047	69,504	55,651
Abalone	34	16	-	50	1,347
Clams[7]	114	2,536	1	2,651	5,567
Crabs	1,093	659	415	2,167	9,311
Geoducks	1,599	2,393	-	3,992	10,582
Octopus	35	160	2	197	657
Oysters	-	4,547	-	4,547	3,613
Shrimp and Prawns	259	2,337	105	2,701	9,643
Scallops	-	68	-	68	317
Sea Cucumbers	452	417	-	869	1,168
Sea Urchins	1,596	2,037	6	3,639	2,901
Other Shellfish[8]	1	609	30	640	909
TOTAL SHELLFISH	5,183	15,779	559	21,521	46,015

TABLE 3 - CONT'D

Species	North[1] Coast	South Coast	Fraser Area	Total	Landed Value ($'000)
Eulachons	-	-	20	20	22
Hagfish	-	213	-	213	538
Smelt	*	-	*	*	1
Sturgeon	-	*	9	9	16
Tuna	135	140	-	275	830
Other[9]	*	1	*	1	3
TOTAL OTHER	135	354	29	518	1,410
GRAND TOTAL[10]	101,335	115,003	12,528	228,866	467,712

1 Includes landings in the Taku/Stikine district.
2 Excludes production from salmon mariculture operations.
3 Excludes 207 tonnes of halibut valued at $1,314,607 landed at U.S. ports.
4 Excludes 69,293 tonnes of hake worth $10,915,796 delivered to foreign vessels in joint venture or co-operative fishing arrangements. An additional 3,976 tonnes was caught by foreign vessels in Canadian waters.
5 Includes reedi, greenies, other rockfish, red snapper and silver perch.
6 Includes non-food fish, idiotfish and shark.
7 Includes horse clams, as well as 43 tonnes of mussels and clams from aquaculture leases worth $150,000.
8 Includes mussels, gooseneck barnacles, snails, squid, plankton, crayfish and other shellfish n.e.s.
9 Includes anchovies and other fish.
10 Includes direct deliveries by Canadian fishermen to U.S. ports.

* Less than 1 tonne reported.

Note: Salmon is reported in standard form; i.e., net caught is reported in round weight and troll caught is reported dressed head-on; halibut is reported dressed head-off; and all other fish are reported in round weight.

TABLE 4 - REGIONAL WHOLESALE VALUE OF B.C. FISHERIES PRODUCTION BY PRODUCT CATEGORY 1989 - 1990[1]

($'000)

PRODUCT CATEGORY	LOWER MAINLAND		VANCOUVER ISLAND		SUNSHINE COAST		CENTRAL & NORTH[2] COAST		TOTAL B.C.	
	1989	1990	1989	1990	1989	1990	1989	1990	1989	1990
Fresh	94,495	126,067	38,323	41,036	29,932	25,567	13,087	13,548	175,837	206,218
Frozen	173,800	208,391	52,418	28,587	5,935	5,467	40,805	49,500	272,958	291,945
Cured	156,949	170,330	7,583	8,957	2,415	1,345	29,088	38,109	196,035	218,741
Canned	252,818	198,983	8,926	4,081	-	-	75,834	85,460	337,578	288,524
Other	20,119	13,877	1,276	748	121	17	612	1,500	22,128	16,142
GRAND TOTAL	698,181	717,648	108,526	83,409	38,403	32,396	159,426	188,117	1,004,536	1,021,570

1 Excludes over-the-side hake sales, and halibut and tuna landed in U.S. ports but includes salmonid mariculture production.

2 Includes a small amount of production from the interior region.

II. SUMMARY BY SPECIES

A) SALMON

In 1990, the salmon industry in British Columbia, in terms of harvest, was very similar to the previous year. Salmon landings increased by nine percent from 84,894 tonnes in 1989 to 92,466 tonnes. The landed value showed a nominal three percent increase from $256.1 million in 1989 to $263.4 million. In 1990, the sockeye harvest was up 8 percent over the previous year, accounting for 40 percent of the total salmon landings for the year. This harvest was more than three times higher than in 1988 and one of the largest harvests since 1913. Despite the 12 percent decrease in landed price to $4.33 per kg. the total landed value of sockeye at $160.7 million accounted for 61 percent of the total landed value of all salmon species.

In 1990, seine gear accounted for 49 percent of salmon landings, while troll gear was responsible for 27 percent and gillnet gear 24 percent. Seiners harvested large quantities of pink, chum and sockeye salmon. A significant amount of sockeye along with chum and the majority of the steelhead was landed on gillnet gear. Troll gear accounted for the majority of the coho and chinook landings as well as 23 percent of the sockeye and 16 percent of the pink catch.

The total wholesale salmon value dropped 4 percent from $586.9 million in 1989 to $564.3 million in 1990. The total wholesale values of all species except sockeye and pink increased. The above-average salmon harvest including the huge sockeye catch may have, to some extent, contributed to the decreases in the average prices for all species of canned salmon. Salmon production contributed 55 percent to the total wholesale value generated by the British Columbia fish processing industry in 1990, 3 percent lower than in 1989.

In 1990, there was a slight change in the mix of salmon products from the previous year. Canned salmon accounted for approximately 51 percent of the total salmon wholesale value, down from the 58 percent recorded in 1989. Fresh salmon products accounted for 8 percent of the total wholesale value in 1990, doubling from the previous year. Most of this increase can be attributed to vessels with the new "Y" licence category created in 1990, which allows for direct exports of salmon to the United States.

In total, the 1990 canned salmon pack consisted of 1,685,617 standard cases, down from the 1989 total of 1,745,716. Compared to 1989, the 1990 pack represented a 3 percent decrease in volume and a 15 percent decrease in wholesale value. In 1990, pink salmon accounted for 46 percent, sockeye 43 percent, chum 7 percent, coho 3 percent, and others less than one percent of the total number of cases produced. In terms of wholesale value, however, sockeye contributed 60 percent, pink 32 percent, chum 4 percent, coho 3 percent, and others less than one percent of the total canned salmon value. All species of salmon exhibited decreases in the average wholesale prices of canned products. The drop in average prices ranged from 10 percent for steelhead to 27 percent for chinook. Overall, the reported net selling value for all canned salmon was 8 percent less than the total wholesale value.

Fresh dressed salmon production was nearly evenly divided between head-on and head-off products, at 53 and 47 percent respectively, while 78 percent of the frozen dressed salmon was marketed in a head-off form. Frozen dressed, head-off salmon accounted for 65 percent of the total dressed production in 1990 compared to 72 percent in 1989. The highest price received for dressed salmon in 1990 was for frozen dressed head-off No. 1 grade sockeye at $8.35 per kg., well below the $9.13 per kg. received in 1989. The average price for most dressed salmon products in 1990 demonstrated significant declines from the previous year.

This was the second year that data on the grades of frozen dressed salmon was tabulated. Ninety percent of the total volume of frozen dressed salmon products was reported as number one grade. Specifically, 91 percent of the head-on products, and 89 percent of the head-off products were designated as number one grade.

The total wholesale value of smoked salmon products rose to $19.4 million in 1990, a 6 percent increase over the 1989 total of $18.3 million. As in the previous year, smoked salmon products in 1990 contributed 3 percent to the total value of all salmon products. Cold smoked salmon accounted for 73 percent of the wholesale value of smoked salmon production, down from 82 percent in the previous year. Prices for cold smoked salmon remained high in 1990 with sockeye at $24.28 per kg., a slight decrease from 1989. Data on specialty smoked salmon products was separated from the cold and hot smoked products and in 1990 accounted for $1.9 million, a 41 percent increase over 1989.

In 1990, data on salmon roe products was expanded to include four distinct product categories: caviar, suchiko, salmon roe and roe for bait. Caviar brought the highest prices of all roe products with sockeye caviar selling at $32.37 per kg. The total wholesale value of all salmon roe products combined increased four fold over the 1989 value of $3.4 million to $15 million.

Other types of salmon products reported in 1990, included salted products with a wholesale value of $6 million, frozen steaks and fillets at just over $3 million, salmon by-products worth $2.3 million and portion pack/speciality items worth $532 thousand.

It should be noted that this discussion, and Tables 5 to 24 reflect production from commercial caught wild salmon only. In 1990, fish processing facilities generated $85.1 million worth of products derived from farmed salmon. These products will be discussed in subsection F of this report. In total, including salmon from all sources, the British Columbia industry generated $649.4 million in salmon products or approximately 63 percent of the total B.C. wholesale value.

TABLE 5 - LANDINGS OF SALMON BY SPECIES AND STATISTICAL AREA - 1990[1]
(Round weight in tonnes)

AREA	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEELHEAD	TOTAL
TAKU	9	55	13	*	*	*	77
STIKINE	14	45	16	1	2	1	78
SUBTOTAL	24	99	28	1	2	1	155
NORTH COAST							
1	1,000	253	2,064	3,730	132	1	7,179
2E	84	64	297	561	1,300	*	2,306
2W	402	2,574	301	873	238	1	4,388
3	126	530	377	1,771	287	4	3,095
4	143	2,089	392	1,614	212	31	4,480
5	56	132	132	1,103	112	1	1,536
6	78	120	345	2,967	988	1	4,499
7	92	38	197	577	1,031	*	1,935
8	111	310	233	5,671	4,404	2	10,730
9	10	695	31	318	113	*	1,166
10	17	190	79	252	33	*	570
30	3	*	3	5	*	*	11
SUBTOTAL	2,121	6,994	4,450	19,442	8,848	41	41,896
SOUTH COAST							
11	92	946	383	285	47	*	1,753
12	106	3,740	276	5,381	3,181	1	12,684
13	106	2,162	180	463	2,980	*	5,892
14	81	7	189	1	750	*	1,028
15	6	*	18	*	-	-	25
16	8	346	13	5	11	*	382
17	10	42	11	*	4	-	67
18	8	257	4	1	218	*	488
19	-	-	-	-	337	-	337
20	55	9,032	319	5	9	*	9,420
21	45	29	192	1	127	*	394
22	-	-	-	-	-	-	-
23	1,187	644	1,761	39	2	*	3,634
24	274	418	747	13	2	*	1,453
25	175	1,256	456	13	3	*	1,904
26	281	603	640	36	5	*	1,565
27	530	2,351	862	551	36	*	4,331
SUBTOTAL	2,963	21,834	6,050	6,793	7,714	3	45,357
FRASER AREA							
28	-	-	-	-	-	-	-
29AB	77	7,052	31	3	343	*	7,506
29C	1	108	1	*	2	*	111
29D	43	1,046	9	*	272	*	1,370
29E	-	-	-	-	-	-	-
SUBTOTAL	120	8,205	40	4	617	1	8,988
TOTAL B.C.	**5,228**	**37,133**	**10,569**	**26,240**	**17,180**	**45**	**96,396**

1 Rows and columns may not total exactly, due to rounding. See Appendix I for Statistical Area Maps.

* Less than 500 kg.

SOURCE: Department of Fisheries and Oceans, Pacific Region

TABLE 6 - LANDINGS OF SALMON BY SPECIES AND GEAR 1979 - 1990

(Round Weight in Tonnes)

GILLNET GEAR

	CHINOOK (t)	SOCKEYE (t)	COHO (t)	PINK (t)	CHUM (t)	TOTAL[1] (t)	VALUE[2] ($'000)	NUMBER OF DELIV. ('000)	AVERAGE CATCH PER DELIV. (kg)	AVERAGE VALUE PER DELIV. ($)
1979	886	7,435	774	2,146	2,151	13,430	34,796	52	258	669
1980	670	3,265	848	1,711	7,548	14,084	31,042	51	276	609
1981	652	9,031	562	4,660	3,182	18,153	39,222	53	342	740
1982	917	9,817	870	526	5,525	17,742	41,387	51	348	811
1983	594	4,472	531	3,886	2,575	12,100	20,586	46	263	448
1984	763	6,542	518	1,826	2,988	12,761	35,674	51	250	699
1985	525	13,461	857	4,012	6,211	25,218	67,387	70	360	962
1986	516	11,073	981	4,217	9,216	26,130	67,689	65	402	1,041
1987	271	6,619	380	4,464	4,236	16,027	54,327	47	341	1,156
1988	485	7,591	417	1,745	8,966	19,281	90,036	55	351	1,637
1989	789	12,475	687	2,687	3,955	20,616	71,143	58	355	1,227
1990	631	13,023	675	2,839	6,049	23,256	67,590	60	388	1,127

SEINE GEAR

	CHINOOK (t)	SOCKEYE (t)	COHO (t)	PINK (t)	CHUM (t)	TOTAL[1] (t)	VALUE[2] ($'000)	NUMBER OF DELIV. ('000)	AVERAGE CATCH PER DELIV. (kg)	AVERAGE VALUE PER DELIV. ($)
1979	903	5,861	1,539	13,983	2,425	24,717	42,522	12	2,060	3,544
1980	588	4,327	1,252	9,650	8,972	24,796	41,854	12	2,066	3,488
1981	774	11,636	1,430	24,297	2,847	40,994	63,864	10	4,099	6,386
1982	780	12,617	1,245	3,148	9,147	26,952	51,818	10	2,695	5,181
1983	496	9,006	1,354	30,207	2,150	43,225	48,443	11	3,930	4,404
1984	444	5,791	843	7,811	5,603	20,514	38,399	13	1,578	2,953
1985	733	14,735	1,410	25,996	15,769	58,676	106,902	14	4,190	7,635
1986	580	12,944	1,776	23,679	14,152	53,156	101,972	14	3,797	7,284
1987	355	6,283	985	15,415	6,413	29,465	68,117	10	2,947	6,812
1988	298	3,693	620	25,559	20,218	50,401	122,919	14	3,600	8,780
1989	557	17,266	1,194	19,068	4,846	42,936	111,841	10	4,294	11,184
1990	402	15,770	1,055	19,307	10,800	47,338	103,668	11	4,303	9,424

TABLE 6 - CONT'D

TROLL GEAR

	CHINOOK (t)	SOCKEYE (t)	COHO (t)	PINK (t)	CHUM (t)	TOTAL[1] (t)	VALUE[2] ($'000)	NUMBER OF DELIV. ('000)	AVERAGE CATCH PER DELIV. (kg)	AVERAGE VALUE PER DELIV. ($)
1979	5,056	1,236	8,029	8,567	175	23,067	83,215	163	142	511
1980	5,282	135	6,925	2,357	289	14,991	44,107	189	79	233
1981	4,490	333	5,522	9,296	128	19,774	54,984	164	121	335
1982	5,395	7,709	7,182	303	419	21,010	71,897	169	124	420
1983	4,288	848	8,576	5,445	148	19,334	42,056	170	114	247
1984	5,047	544	8,728	2,422	412	17,157	70,725	138	124	513
1985	4,211	3,373	6,710	7,692	1,666	23,669	72,381	124	191	584
1986	3,911	6,816	10,481	1,609	1,829	24,652	96,113	112	220	858
1987	4,623	2,133	7,050	7,042	351	21,203	89,616	84	252	1,067
1988	5,138	659	6,040	4,913	1,113	17,866	99,110	86	208	1,152
1989	3,889	4,642	6,871	9,250	521	25,175	73,097	75	336	975
1990	4,195	8,341	8,839	4,094	332	25,803	92,142	90	287	1,024

1 Totals include steelhead.

2 1979-1983 values do not include year-end bonus or direct delivery payments. 1984-1987 values include year-end bonus payments. 1985 values include direct delivery payments.

TABLE 7 - SHARE OF SALMON LANDINGS BY SPECIES AND GEAR - 1990

(Round Weight in Tonnes)

Species	Gillnet Tonnes	Share %	Seine Tonnes	Share %	Troll Tonnes	Share %	Total Tonnes
Chinook	631	12.1	402	7.7	4,195	80.2	5,228
Sockeye	13,023	35.1	15,770	42.5	8,341	22.4	37,134
Coho	675	6.4	1,055	10.0	8,839	83.6	10,569
Pink	2,839	10.8	19,307	73.6	4,094	15.6	26,240
Chum	6,049	35.2	10,800	62.9	332	1.9	17,181
Steelhead	39	86.7	4	8.9	2	4.4	45
TOTAL	23,256	24.1	47,338	49.1	25,803	26.8	96,397

TABLE 8 - LANDED AND WHOLESALE VALUE OF SALMON BY PRODUCT TYPE 1979 - 1990

($'000)

	LANDED VALUE[1]	CANNED	FRESH	FROZEN	ROE	OTHER	TOTAL WHOLESALE VALUE
1979	161,113	115,927	8,127	143,093	11,393	11,087	289,627
1980	117,149	146,828	10,429	109,300	13,209	9,341	289,107
1981	158,226	237,391	6,744	108,047	12,802	8,694	373,678
1982	165,207	127,126	10,633	155,762	9,829	11,988	315,338
1983	111,097	176,191	13,414	80,873	3,186	10,625	284,289
1984	144,814	94,457	15,432	145,679	5,065	15,608	276,241
1985	246,696	258,646	14,137	206,647	12,019	20,794	512,243
1986	265,778	277,913	19,244	198,557	13,947	26,562	536,223
1987	212,063	171,573	24,773	189,824	9,180	30,251	425,601
1988	312,087	236,780	23,944	265,686	20,289[2]	36,931	583,630
1989	256,100	337,519	23,603	190,441	7,751[2]	27,566	586,880
1990	263,413	288,348	45,654	186,408	15,356[2]	28,524	564,290

1 Includes salmon roe.
2 Includes caviar, No. 1 and other roe grades.

TABLE 9 - LANDED AND WHOLESALE VALUE OF SALMON BY SPECIES 1979 - 1990

	Quantity Landed in Tonnes (Round Weight)	Landed Value ($'000)	Average Landed Price ($/kg)	Wholesale Value ($'000)[1]	Landed Value as a Percent of Wholesale Value (%)
CHINOOK					
1979	6,845	31,159	4.55	40,475	77.0
1980	6,540	24,307	3.72	38,421	63.3
1981	5,916	25,731	4.35	38,051	67.6
1982	7,092	31,205	4.40	41,490	75.2
1983	5,378	17,614	3.28	29,489	59.7
1984	6,254	37,318	5.97	45,861	81.4
1985	5,469	25,564	4.67	41,433	61.7
1986	5,007	19,658	3.93	31,206	63.0
1987	5,249	30,527	5.82	41,489	73.6
1988	5,921	43,795	7.40	57,979	75.5
1989	5,234	20,157	3.85	34,071	59.3
1990	5,228	20,484	3.92	35,627	57.5
SOCKEYE					
1979	14,532	43,307	2.98	81,008	53.5
1980	7,727	18,222	2.36	47,416	38.4
1981	21,000	54,577	2.60	122,073	44.7
1982	30,143	78,860	2.62	155,363	50.8
1983	14,326	36,617	2.56	83,988	43.6
1984	12,877	45,976	3.57	84,191	54.6
1985	31,569	120,428	3.81	206,338	58.4
1986	30,833	143,270	4.65	237,871	60.2
1987	15,035	87,381	5.81	147,997	59.0
1988	11,943	96,408	8.07	150,134	64.2
1989	34,383	169,272	4.92	291,198	58.1
1990	37,133	160,734	4.33	290,504	55.3
COHO					
1979	10,342	44,063	4.26	57,203	77.0
1980	9,025	23,078	2.56	43,568	53.0
1981	7,514	22,009	2.93	37,984	57.9
1982	9,297	26,144	2.81	42,582	61.4
1983	10,461	22,504	2.15	39,306	57.3
1984	10,089	35,532	3.52	59,624	59.6
1985	8,977	26,555	2.96	48,362	54.9
1986	13,238	39,264	2.97	66,090	59.4
1987	8,415	33,747	4.01	61,803	54.6
1988	7,077	37,688	5.33	59,134	63.7
1989	8,752	19,335	2.21	45,481	42.5
1990	10,569	28,065	2.66	53,292	52.7

TABLE 9 - CONT'D

	Quantity Landed in Tonnes (Round Weight)	Landed Value ($'000)	Average Landed Price ($/kg)	Wholesale Value ($'000)[1]	Landed Value as a Percent of Wholesale Value (%)
PINK					
1979	24,696	29,685	1.20	76,867	38.6
1980	13,718	15,118	1.10	50,425	30.0
1981	38,253	45,822	1.20	117,302	39.1
1982	3,977	3,195	0.80	13,675	23.4
1983	39,538	26,651	0.67	103,767	25.7
1984	12,059	10,742	0.89	38,195	28.1
1985	37,700	38,979	1.03	115,160	33.8
1986	29,505	25,691	0.87	96,812	26.5
1987	26,921	33,479	1.24	102,293	32.7
1988	32,217	49,303	1.53	160,956	30.6
1989	31,004	33,481	1.08	121,199	27.6
1990	26,240	26,981	1.03	90,810	29.7
CHUM					
1979	4,751	12,243	2.58	21,262	57.6
1980	16,809	36,197	2.15	63,960	56.6
1981	6,157	9,781	1.59	21,653	45.2
1982	15,091	25,528	1.69	42,768	59.7
1983	4,899	7,605	1.55	14,735	51.6
1984	9,003	14,938	1.66	34,835	42.9
1985	23,646	34,755	1.47	75,907	45.8
1986	25,197	37,614	1.49	77,904	48.3
1987	11,000	26,779	2.43	55,926	47.9
1988	30,297	84,621	2.79	145,581	58.1
1989	9,322	13,778	1.48	42,085	32.7
1990	17,181	27,053	1.57	61,856	43.7
STEELHEAD					
1979	48	96	2.00	250	38.4
1980	52	81	1.56	247	32.8
1981	81	147	1.81	387	38.0
1982	104	170	1.63	520	32.7
1983	57	94	1.65	308	30.5
1984	150	292	1.95	1,032	28.3
1985	202	389	1.92	857	45.4
1986	158	277	1.75	895	30.9
1987	75	147	1.96	445	33.0
1988	93	250	2.69	842	29.7
1989	32	58	1.81	257	22.6
1990	45	83	1.84	401	20.7

1 Does not include the wholesale value derived from salmon caught in U.S. waters and canned in British Columbia.

TABLE 10 - WHOLESALE VALUE OF SALMON BY SPECIES 1979 - 1990

($'000)

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEEL-HEAD	NOT CLASSIFIED	TOTAL WHOLESALE VALUE
1979	40,475	81,008	57,203	76,867	21,262	250	12,562	289,627
1980	38,427	68,224	43,645	58,655	64,608	248	15,300	289,107
1981	38,073	131,030	38,433	128,553	22,271	387	14,931	373,678
1982	41,495	158,492	42,595	17,813	42,887	520	11,536	315,338
1983	29,490	84,996	39,384	109,732	14,777	308	5,602	284,289
1984	45,863	86,165	59,772	44,761	35,815	1,032	2,833	276,241
1985	41,435	206,810	48,762	135,376	76,705	857	2,298	512,243
1986	31,235	244,337	68,307	108,403	79,707	895	3,339	536,223
1987	41,505	154,162	63,025	106,330	56,540	445	3,594	425,601
1988	57,979	154,054	59,350	161,690	146,086	842	3,629	583,630
1989	34,153	297,181	46,560	162,389	42,655	257	3,685	586,880
1990	35,794	301,734	53,991	106,570	62,632	402	3,167	564,290

TABLE 11 - PRODUCTION AND UTILIZATION OF BC SALMON BY SPECIES 1989 - 1990

	UNIT	1989 QUANTITY	1989 VALUE[1] ($'000)	1989 AVERAGE[2] PRICE ($)	1990 QUANTITY	1990 VALUE[1] ($'000)	1990 AVERAGE[2] PRICE ($)
CHINOOK							
Canned	48-lb. cases	8,855	1,278	144.33	7,004	735	104.77
Fresh Round	000 kg	28	92	3.29	68	222	3.30
Fresh Dressed	000 kg	262	1,583	6.04	589	3,698	6.22
Frozen Round	000 kg	-	-	-	*	*	4.65
Frozen Dressed	000 kg	3,507	26,814	7.65	3,667	26,205	7.15
Frozen Steaks	000 kg	4	61	15.25	5	82	15.06
Salted	000 kg	15	132	8.80	*	*	12.10
Smoked[3]	000 kg	184	3,901	21.20	335	4,434	13.27
Roe[4,5]	000 kg	8	86	10.75	13	141	10.59
Caviar[4,5]	000 kg	8	206	68.67	9	172	19.11
Portion Pack	000 kg	*	*	4.00	8	105	12.04
Minced	000 kg	-	-	-	*	*	8.05
TOTAL CHINOOK		-	34,153	-	-	35,794	-
SOCKEYE							
Canned	48-lb. cases	634,429	172,164	271.37	731,791	172,781	236.11
Fresh Round	000 kg	664	3,361	5.06	2,270	12,643	5.57
Fresh Dressed	000 kg	972	7,408	7.62	1,886	12,519	6.64
Frozen Round	000 kg	45	318	7.07	50	152	3.04
Frozen Dressed	000 kg	10,585	95,643	9.04	10,075	81,342	8.07
Frozen Steaks	000 kg	22	281	12.77	134	1,669	12.46
Salted	000 kg	402	4,282	10.65	473	5,604	11.84
Smoked	000 kg	398	9,921	24.93	467	10,815	23.15
Roe[4,5]	000 kg	212	1,958	9.24	348	2,605	7.49
Caviar[4,5]	000 kg	*	*	29.00	161	1,398	8.65
Portion Pack	000 kg	133	1,845	13.87	-[6]	3	26.68
Minced	000 kg	-	-	-	47	203	4.32
TOTAL SOCKEYE		-	297,181	-	-	301,734	-

TABLE 11 - CONT'D

	1989			1990		
UNIT	QUANTITY	VALUE[1] ($'000)	AVERAGE[2] PRICE ($)	QUANTITY	VALUE[1] ($'000)	AVERAGE[2] PRICE ($)
COHO						
Canned.....48-lb. cases	66,639	14,198	213.06	53,080	8,858	166.88
Fresh Round.....000 kg	54	114	2.11	96	287	2.98
Fresh Dressed....000 kg	719	3,135	4.36	995	4,247	4.27
Frozen Round.....000 kg	-	-	-	*	*	6.06
Frozen Dressed...000 kg	4,967	26,822	5.40	6,463	39,484	6.11
Frozen Steaks....000 kg	61	864	14.16	40	462	11.56
Salted.....000 kg	*	*	9.00	*	*	10.82
Smoked.....000 kg	42	865	20.60	26	416	15.67
Roe[3].....000 kg	19	189	9.95	18	96	5.40
Caviar[4,5].....000 kg	16	373	23.31	12	141	11.52
Portion Pack.....000 kg	*	*	18.75	*	*	19.29
TOTAL COHO	-	46,560	-	-	53,991	-
PINK						
Canned.....48-lb. cases	935,033	137,260	146.80	777,308	93,156	119.84
Fresh Round.....000 kg	121	142	1.17	435	771	1.77
Fresh Dressed....000 kg	892	2,460	2.70	616	1,733	2.82
Frozen Round.....000 kg	*	*	1.30	-	-	-
Frozen Dressed...000 kg	6,701	21,064	3.14	3,193	9,105	2.85
Frozen Steaks....000 kg	2	10	5.00	8	68	8.00
Salted.....000 kg	*	*	3.22	-	-	-
Smoked.....000 kg	24	446	18.58	28	310	10.90
Roe[4,5].....000 kg	149	1,007	6.76	158	968	6.12
Caviar[4,5].....000 kg	*	*	12.07	91	459	5.02
Portion Pack.....000 kg	-	-	-	*	*	17.44
TOTAL PINK	-	162,389	-	-	106,570	-

TABLE 11 - CONT'D

	UNIT	1989 QUANTITY	1989 VALUE[1] ($'000)	1989 AVERAGE[2] PRICE ($)	1990 QUANTITY	1990 VALUE[1] ($'000)	1990 AVERAGE[2] PRICE ($)
CHUM							
Canned	48-lb. cases	100,525	12,592	125.26	115,947	12,768	110.12
Fresh Round	000 kg	477	1,084	2.27	1,059	1,940	1.83
Fresh Dressed	000 kg	1,237	4,195	3.39	2,216	7,557	3.41
Frozen Round	000 kg	-	-	-	*	*	2.36
Frozen Dressed	000 kg	4,398	16,636	3.78	7,132	26,732	3.75
Frozen Steaks	000 kg	164	1,230	7.50	133	856	6.43
Salted	000 kg	*	*	-	-	-	-
Smoked	000 kg	227	3,127	13.78	462	3,403	7.37
Roe[3]	000 kg	89	1,025	11.52	249	3,059	12.32
Caviar[4,5]	000 kg	105	2,766	26.34	307	6,317	20.51
Portion Pack	000 kg	*	*	12.30	*	*	12.08
Minced	000 kg	-	-	-	*	*	3.09
TOTAL CHUM		-	42,655	-	-	62,632	-
STEELHEAD							
Canned	48-lb. cases	235	27	113.37	487	50	102.23
Fresh Round	000 kg	-[6]	-	-	2	4	2.32
Fresh Dressed	000 kg	6	29	4.83	4	33	7.01
Frozen Round	000 kg	-	-	-	-	-	-
Frozen Dressed	000 kg	35	187	5.34	41	236	5.69
Frozen Steaks	000 kg	-	-	-	-	-	-
Smoked	000 kg	1	14	14.00	10	79	7.98
Roe	000 kg	*	*	11.11	-	-	-
Portion Pack	000 kg	*	*	10.00	-	-	-
TOTAL STEELHEAD		-	257	-	-	402	-

TABLE 11 - CONT'D

	UNIT	1989 QUANTITY	1989 VALUE[1] ($'000)	1989 AVERAGE[2] PRICE ($)	1990 QUANTITY	1990 VALUE[1] ($'000)	1990 AVERAGE[2] PRICE ($)
ALL SALMON[7]							
Canned	48-lb. cases	1,745,716	337,519	193.34	1,685,617	288,348	171.06
Fresh Round	000 kg	1,344	4,793	3.57	3,930	15,867	4.04
Fresh Dressed	000 kg	4,088	18,810	5.66	6,306	29,787	4.72
Frozen Round	000 kg	437	829	1.90	55	167	3.01
Frozen Dressed	000 kg	30,193	187,166	6.20	30,571	183,104	5.82
Frozen Steaks	000 kg	253	2,446	9.67	320	3,137	9.77
Salted	000 kg	427	4,452	10.43	504	5,977	11.85
Smoked	000 kg	876	18,274	20.86	1,328	19,457	14.64
Salmon Roe[3]	000 kg	486	4,365	8.98	786	6,869	8.74
Caviar[4,5]	000 kg	130	3,386	26.05	580	8,487	14.63
Portion Pack	000 kg	200	2,708	13.54	32	532	16.31
Minced	000 kg	-	-	-	72	300	4.16
Other[8]		-	2,132	-	-	2,258	-
TOTAL ALL SALMON		-	586,880	-	-	564,290	-

1 Any discrepancies in VALUE ($'000) figures are due to rounding.
2 Average Price: Canned Salmon $/48-lb. case; Other Salmon Products $/kg. Value divided by quantity may not equal average price due to rounding.
3 Includes roe for bait products.
4 Caviar products prior to 1989 were combined with other salmon roe products.
5 1990 caviar products also include suchiko products.
6 Less than 500 kilograms reported.
7 Note: The total value of "ALL SALMON" includes values for products including offal, oil, meal, etc. which could not be allocated to particular species. Also included are the value of items where less than three companies are reported. In a number of cases, however, confidential data is included if the total processed product represented by the confidential data is accounted for by three or more companies.
8 Includes offal, offal meal, oil, heads, bait, milts, animal feed, and other products.

* Confidential. Fewer than three companies reporting.

TABLE 12 - B.C. CANNED SALMON PRODUCTION BY REGION - 1990[1]

(48 lb. Cases)

AREA	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEEL-HEAD	TOTAL
North Coast	2,988	149,978	19,121	285,846	48,178	399	506,510
South Coast & Fraser Area	4,016	581,813	33,959	491,462	67,769	88	1,179,107
TOTAL	7,004	731,791	53,080	777,308	115,947	487	1,685,617

1 Does not include imported salmon custom canned in B.C. for U.S. companies.

TABLE 13 - COMPARISON OF THE 1990 CANNED SALMON PACK TO THE 12 YEAR AVERAGE PACK 1979 - 1990

	1979 - 1990 Average (48 lb. cases)	1990 (48 lb. cases)	Difference (%)
Sockeye	458,659	731,791	+60
Coho	51,764	53,080	+3
Pink	707,536	777,308	+10
Chum	126,382	115,947	-8
Other	6,873	7,491	+9
TOTAL	1,351,214	1,685,617	+25

TABLE 14 - BRITISH COLUMBIA CANNED SALMON PRODUCTION[1]
QUANTITY AND VALUE BY SPECIES - 1990

SPECIES	QUANTITY (48 lb. Cases)	WHOLESALE VALUE ($'000)	AVERAGE PRICE[2] $/48 lb. Case	NET SELLING VALUE ($'000)	AVERAGE PRICE[2] $/48 lb. Case
Red Chinook	3,528	378	107.14	359	101.53
Pink Chinook	2,848	303	106.39	269	94.24
White Chinook	628	54	85.99	50	79.65
Sockeye	731,791	172,781	236.11	159,106	217.42
Coho	53,080	8,858	166.88	8,167	153.86
Pink	777,308	93,156	119.84	85,521	110.02
Chum	115,947	12,768	110.12	11,560	99.74
Steelhead	487	50	102.23	45	93.15
TOTAL	1,685,617	288,348	-	265,077	-

1 Fish processors were requested to report both a final wholesale value and a net selling value for their canned salmon production. The final wholesale value represents gross sales based upon company invoices. The net selling value refers to the final selling price after promotions, case allowances, cash discounts and other trade discounts which may apply.

2 Value divided by quantity may not equal average price due to rounding.

TABLE 15 - BRITISH COLUMBIA CANNED SALMON PACK BY YEAR 1979 - 1990

(48 lb. Case)

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEELHEAD	TOTAL
1979	12,953	295,858	43,061	569,337	33,689	327	955,225
1980	7,599	368,844	88,217	472,462	176,884	420	1,114,426
1981	7,839	622,490	61,333	1,020,545	87,866	472	1,800,545
1982	7,661	548,998	47,246	140,415	74,127	384	818,831
1983	4,306	371,483	60,560	996,727	47,120	331	1,480,527
1984	2,709	230,798	25,832	338,474	68,579	276	666,668
1985	4,769	583,579	39,559	1,002,477	269,070	1,025	1,900,479
1986	6,417	599,320	82,375	900,782	264,282	599	1,853,775
1987	3,667	309,597	29,546	602,539	62,909	424	1,008,682
1988	3,092	206,715	23,715	734,329	215,586	620	1,184,057
1989	8,855	634,429	66,639	935,033	100,525	235	1,745,716
1990	7,004	731,791	53,080	777,308	115,947	487	1,685,617

TABLE 16 - AVERAGE WHOLESALE PRICE OF BRITISH COLUMBIA CANNED SALMON BY YEAR 1979 - 1990

($/48 lb. Case)

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEELHEAD
1979	82.25	159.06	132.16	103.53	93.12	93.49
1980	93.25	168.87	134.60	114.41	100.98	98.73
1981	105.01	175.17	145.55	107.87	96.34	104.22
1982	114.61	177.12	145.87	115.96	78.11	111.98
1983	103.02	178.46	136.61	97.04	93.83	112.52
1984	103.57	198.87	146.77	112.35	93.82	89.46
1985	105.87	201.61	150.18	111.38	84.69	94.39
1986	103.26	236.11	177.61	111.32	78.64	99.12
1987	102.74	266.34	176.66	128.05	100.29	126.64
1988	150.44	334.27	211.14	180.85	136.02	139.51
1989	144.33	271.37	213.06	146.80	125.26	113.37
1990	104.77	236.11	166.88	119.84	110.12	102.23

TABLE 17 - QUANTITY AND WHOLESALE VALUE OF BRITISH COLUMBIA DRESSED SALMON PRODUCTION BY SPECIES - 1990[1]

	FRESH DRESSED						FROZEN DRESSED						TOTAL		
	Head-On			Head-off			Head-On			Head-Off			Fresh/Frozen Dressed		
SPECIES	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]
Red Chinook	405	2,627	6.48	98	674	6.89	300	1,827	7.03	2,879	20,890	7.23	3,682	26,018	7.14
Pink Chinook	6	38	6.19	2	13	5.38	59	449	7.63	184	1,353	7.36	251	1,853	7.38
White Chinook	60	270	4.50	18	76	4.24	1	7	4.11	284	1,679	5.91	363	2,032	5.59
Sockeye	1,640	10,590	6.46	246	1,929	7.85	3,584	28,869	8.05	6,491	52,473	8.08	11,961	93,861	7.85
Coho	821	3,290	4.01	174	957	5.51	1,298	7,559	5.82	5,165	31,925	6.18	7,458	43,731	5.86
Pink	278	753	2.71	338	980	2.90	621	1,836	2.96	2,572	7,269	2.83	3,809	10,838	2.85
Silver Brite Chum	36	121	3.35	1,409	4,879	3.46	107	493	4.60	2,858	11,780	4.12	4,410	17,273	3.92
Semi Brite Chum	91	315	3.46	531	1,835	3.45	694	2,709	3.90	2,100	7,604	3.62	3,416	12,463	3.65
Dark Chum	32	87	2.69	117	320	2.74	*	*	4.13	1,035	2,747	2.65	1,184	3,154	2.99
Steelhead	4	32	7.16	-[3]	1	3.74	30	178	6.03	11	58	4.85	45	269	5.82
TOTAL[4]	3,373	18,123	-	2,933	11,664	-	6,694	43,927	-	23,579	137,778	-	36,579	211,492	-

1 Excludes products derived from farmed salmon.
2 Value divided by quantity may not equal average price due to rounding.
3 Less than 500 kg.
4 Excludes products that were reported by less than three companies.

* Confidential. Fewer than three companies reporting.

TABLE 18 - QUANTITY AND WHOLESALE VALUE OF BRITISH COLUMBIA FROZEN DRESSED SALMON PRODUCTION BY SPECIES AND GRADE - 1990[1]

	FROZEN DRESSED HEAD-ON						FROZEN DRESSED HEAD-OFF						TOTAL		
	No. 1 Grade			Other Grades			No. 1 Grade			Other Grades			Frozen Dressed		
SPECIES	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]
Red Chinook	255	1,785	7.00	5	42	8.65	2,623	19,248	7.34	256	1,642	6.41	3,139	22,717	7.24
Pink Chinook	59	448	7.64	*	*	6.61	180	1,343	7.46	4	10	2.65	243	1,801	7.41
White Chinook	1	6	4.02	*	*	5.31	276	1,643	5.96	8	36	4.22	285	1,685	5.91
Sockeye	3,132	25,329	8.09	452	3,540	7.84	5,343	44,591	8.35	1,148	7,882	6.86	10,075	81,342	8.07
Coho	1,221	7,142	5.85	77	417	5.43	4,884	30,316	6.21	281	1,609	5.72	6,463	39,484	6.11
Pink	538	1,612	3.00	83	224	2.70	2,313	6,547	2.83	259	722	2.78	3,193	9,105	2.85
Silver Brite Chum	105	489	4.41	*	*	2.20	2,568	10,805	4.21	290	975	3.36	2,963	12,269	4.14
Semi Brite Chum	693	2,705	3.90	*	*	3.02	1,915	7,126	3.73	185	478	2.59	2,793	10,309	3.69
Dark Chum	*	*	4.13	-	-	-	931	2,575	2.77	104	172	1.65	1,035	2,747	2.65
Steelhead	29	175	6.07	*	*	4.51	11	56	4.90	*	*	3.62	40	231	5.78
TOTAL[3]	6,033	39,691	-	617	4,223	-	21,044	124,250	-	2,535	13,526	-	30,229	181,690	-

1 Excludes products derived from farmed salmon.
2 Value divided by quantity may not equal average price due to rounding.
3 Excludes products that were reported by less than three companies.

* Confidential. Fewer than three companies reporting.

TABLE 19 - FROZEN DRESSED SALMON PRODUCTION IN B.C. BY YEAR 1979 - 1990[1]

(Tonnes)

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEELHEAD
1979	4,247	4,650	6,827	4,884	3,268	36
1980	3,745	817	4,388	1,299	8,572	33
1981	3,738	2,962	4,196	5,686	2,824	56
1982	4,013	9,757	5,425	413	8,643	86
1983	2,737	2,133	5,722	4,277	2,217	53
1984	3,985	3,574	7,219	1,746	5,523	149
1985	3,513	9,241	5,627	6,147	10,816	137
1986	3,020	9,079	6,852	1,624	11,420	157
1987	3,323	4,819	5,642	5,507	6,079	56
1988	3,996	3,852	4,410	4,457	14,287	87
1989	3,507	10,585	4,967	6,701	4,398	35
1990	3,667	10,075	6,463	3,193	7,132	41

TABLE 20 - AVERAGE WHOLESALE PRICE OF FROZEN DRESSED SALMON[1] BY YEAR 1979 - 1990

($/kg)

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEELHEAD
1979	7.42	6.06	7.05	3.44	5.14	5.64
1980	7.61	5.71	6.15	3.44	5.07	5.71
1981	8.30	6.22	6.41	3.15	4.43	5.76
1982	8.33	5.36	6.17	3.15	3.97	4.89
1983	7.51	5.24	4.91	2.58	3.87	5.00
1984	9.31	7.19	7.12	3.20	4.30	5.81
1985	9.78	7.52	6.84	3.11	3.93	5.06
1986	7.87	8.63	6.68	3.13	3.77	4.77
1987	9.58	10.40	8.52	4.26	5.35	5.62
1988	12.26	14.27	10.63	5.52	6.01	6.93
1989	7.65	9.04	5.40	3.14	3.78	5.34
1990	7.15	8.07	6.11	2.85	3.75	5.69

1 Includes both head-on and head-off products. See Table 17 for 1990 average prices of head-on and head-off products. Excludes farmed salmon.

TABLE 21 - FRESH DRESSED SALMON PRODUCTION IN B.C. BY YEAR 1979 - 1990[1]

(Tonnes)

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEELHEAD
1979	530	130	370	363	31	1
1980	865	113	744	44	90	3
1981	485	128	357	144	71	2
1982	604	499	360	43	483	3
1983	853	602	557	685	260	1
1984	653	705	578	166	255	19
1985	363	718	513	803	273	9
1986	491	678	1,011	275	1,252	11
1987	496	494	974	728	1,026	3
1988	392	399	582	551	1,572	10
1989	262	972	719	892	1,237	6
1990	589	1,886	995	616	2,216	4

TABLE 22 - AVERAGE WHOLESALE PRICE OF FRESH DRESSED SALMON[1] BY YEAR 1979 - 1990

($/kg)

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	STEELHEAD
1979	6.50	5.72	6.17	1.81	5.07	4.41
1980	5.43	4.62	5.14	2.93	3.35	4.23
1981	6.46	5.76	5.68	2.62	3.41	4.49
1982	6.92	4.99	4.78	2.73	3.62	3.97
1983	6.29	4.75	4.49	2.30	3.06	4.62
1984	8.03	6.08	6.24	2.40	3.96	5.87
1985	7.89	6.87	5.79	2.73	3.14	5.17
1986	6.46	8.11	5.74	2.74	2.72	5.85
1987	9.00	9.05	7.32	3.79	4.70	4.75
1988	9.42	11.87	6.87	3.76	5.18	5.38
1989	6.04	7.62	4.36	2.70	3.39	4.89
1990	6.22	6.64	4.27	2.82	3.41	7.01

1 Includes both head-on and head-off products. See Table 17 for 1990 average prices of head-on and head-off products. Excludes farmed salmon.

TABLE 23 - QUANTITY AND WHOLESALE VALUE OF BRITISH COLUMBIA[1]
HOT, COLD AND SPECIALTY SMOKED SALMON - 1990

	HOT SMOKED			COLD SMOKED			SPECIALTY SMOKED			TOTAL[3]		
SPECIES	Tonnes	$'000	Avg.$/kg[2]	Tonnes	$'000	Avg.$/kg[2]	Tonnes	$'000	Avg.$/kg[2]	Tonnes	$'000	Avg.$/kg[2]
Chinook	166	1,200	7.23	156	2,945	18.88	13	289	22.23	335	4,434	13.24
Sockeye	39	712	18.26	365	8,861	24.28	63	1,242	19.71	467	10,815	23.16
Coho	16	228	14.25	9	176	19.56	*	*	18.15	25	404	15.63
Pink	3	28	9.33	24	275	11.46	*	*	5.29	27	303	11.18
Chum	174	1,071	6.16	218	1,973	9.05	70	359	5.13	462	3,403	7.37
Steelhead	*	*	5.81	3	37	13.78	*	*	5.14	3	37	13.78
TOTAL[3]	398	3,239	-	775	14,267	-	146	1,890	-	1,319	19,396	-

1 Does not include smoked farmed salmon.
2 Value divided by quantity may not equal average price due to rounding.
3 Product totals do not include confidential data.

* Confidential. Fewer than three companies reporting.

TABLE 24 - QUANTITY AND WHOLESALE VALUE OF BRITISH COLUMBIA SALMON ROE PRODUCTS BY SPECIES AND GRADE - 1990[1]

	Caviar			Suchiko			Salmon Roe			Roe for Bait			Total Roe Products[3]		
SPECIES	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]	000 kg	$000	$/kg[2]
Chinook	*	*	26.29	4	39	8.38	4	14	4.00	9	127	12.97	17	180	10.02
Sockeye	*	*	32.37	156	1,227	7.85	348	2,605	7.49	-	-	-	504	3,832	7.60
Coho	*	*	32.07	11	106	9.50	18	96	5.44	*	*	1.87	29	202	7.01
Pink	-	-	-	91	459	5.02	158	968	6.12	-	-	-	249	1,427	5.72
Chum	151	4,596	30.22	156	1,721	2.73	238	3,006	12.63	11	53	5.16	556	9,376	16.86
Steelhead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL[3]	151	4,596	-	418	3,552	-	766	6,689	-	20	180	-	1,355	15,017	-

1 Excludes products derived from farmed salmon.
2 Value divided by quantity may not equal average price due to rounding.
3 Excludes products that were reported by less than three companies.

* Confidential. Fewer than three companies reporting.

B) HERRING

In 1990, total herring landings increased slightly to 41,280 tonnes from 41,008 tonnes in 1989. The total landed value rose 7 percent over the same period, from $76.3 million to $81.5 million.

Specifically, roe herring landings were down marginally to 40,307 tonnes in 1990 from the previous year's total of 40,423 tonnes. The corresponding landed value however, rose by 5 percent from $75.7 million to $79.9 million. Food and bait herring landings rose significantly from 585 tonnes in 1989 to 973 tonnes in 1990, a 66 percent increase. This large change in landings appears to be the result of increased participation in the winter food and bait herring fishery. The landed value for the food and bait herring almost tripled in 1990 rising to $1.6 million from $0.5 million in the previous year.

Echoing the small rise in total landed value, the total wholesale value of all herring products also increased by 7 percent in 1990 to $169.3 million. The wholesale value of herring roe production was $164.9 million, also up 7 percent for 1989. This was due primarily to the increase in landings and in the average wholesale price of roe which rose from $24.47 per kg. in 1989 to $25.10 per kg. in 1990.

Combined roe herring production, including herring meal, oil and spawn on kelp, accounted for 97 percent of the total wholesale value of herring production for the seventh consecutive year. The wholesale value of herring frozen for food was $1.4 million while bait was valued at $1.7 million. Frozen food and bait herring in 1990 accounted for about 2 percent or the wholesale value, as it has for eight years. The value of other herring products, including, fresh, kippered snacks, dry-salted, and pickled, totalled $1.4 million or 1 percent of the total wholesale value.

TABLE 25 - ROE HERRING LANDINGS AND WHOLESALE VALUE OF ROE HERRING PRODUCTS 1979 - 1990

	LANDED		WHOLESALE			
	Tonnes[1]	VALUE[1] ($'000)	ROE ($'000)	SPAWN ON KELP ($'000)	FROZEN FOR ROE ($'000)	TOTAL VALUE[3] ($'000)
1979	37,480	126,866	182,304	5,011	5,163	195,387
1980	16,414	26,357	33,074	2,448	1,058	38,297
1981	29,486	35,928	69,946	3,308	- [2]	74,198
1982	27,658	35,479	76,963	3,900	-	83,057
1983	39,155	52,902	98,094	6,455	-	107,946
1984	32,795	43,645	88,090	4,508	- [2]	96,058
1985	24,588	62,050	91,792	5,699	-	100,115
1986	15,732	45,610	77,474	6,372	-	85,454
1987	37,029	106,824	155,074	10,444	-	170,132
1988	30,070	95,117	155,158	12,934	-	171,860
1989	40,423	75,794	140,790	8,711	-	154,484
1990	40,307	79,906	153,897	8,304	-	164,863

1 Includes spawn on kelp.
2 Confidential - fewer than three companies reporting. Included in the total wholesale value.
3 Includes roe herring by-products.

TABLE 26 - FOOD AND BAIT HERRING LANDINGS AND WHOLESALE VALUE OF FOOD AND BAIT HERRING PRODUCTS 1979 - 1990

	LANDED		WHOLESALE		
	Tonnes	VALUE ($'000)	FROZEN FOR FOOD ($'000)	BAIT ($'000)	TOTAL VALUE[1] ($'000)
1979	6,181	2,131	3,204	2,133	6,546
1980	8,909	2,891	7,207	1,597	9,919
1981	8,663	2,177	5,516	1,480	8,253
1982	1,117	450	1,010	1,463	3,391
1983	892	491	418	1,838	3,104
1984	1,080	720	125	1,920	2,898
1985	1,367	1,055	68	2,012	3,017
1986	759	599	256	1,494	2,833
1987	780	528	545	1,945	3,518
1988	1,531	1,340	178	2,212	3,676
1989	585	526	66	1,973	3,298
1990	973	1,567	1,381	1,738	4,410

1 Includes other food and bait herring products.

C) HALIBUT

The total halibut catch by British Columbia fish harvesters was 3,784 tonnes, valued at $21.1 million. The catch originating in Canadian waters and delivered to British Columbia ports decreased by 8 percent in 1990 from 3,893 tonnes to 3,577 tonnes. In addition to these landings, 207 tonnes of halibut valued at $1,314,607 was caught in Canadian waters and delivered by Canadian fish harvesters to U.S. ports. This compares to 766 tonnes, worth approximately $3.6 million, delivered to U.S. ports in the preceding year. The landed value of the catch delivered to British Columbia ports rose, from $15.1 to $19.8 million, an increase of 31 percent. In 1990, the average landed price increased significantly from $3.88 per kg to $5.52 per kg. This 42 percent increase in average landed price can be attributed at least in part to the new individual quota management program initiated in 1990.

The total wholesale value of halibut processed in British Columbia was $26.4 million in 1990, 3 percent below the 1989 value. Including halibut landed by B.C. fish harvesters and delivered to U.S. ports, the total 1990 wholesale value rose 2 percent from $27.4 million in 1989 to $27.8 million. Fresh dressed halibut was still the major product marketed with a wholesale value of $13.1 million, accounting for 47 percent of the total wholesale value of halibut. Frozen dressed halibut continues its recent trend, with a value of $11.6 million, to increase its value share of halibut production from 34 percent to 42 percent. Halibut fillets, steaks and fletches were also processed.

TABLE 27 - LANDINGS AND WHOLESALE VALUE OF HALIBUT IN B.C.[1]

1979 - 1990

	TOTAL LANDINGS (Tonnes)	LANDED VALUE ($'000)	AVG.LANDED PRICE ($/kg)	WHOLESALE VALUE ($'000)
1979	2,410	14,004	5.81	17,692
1980	2,668	7,341	2.75	9,962
1981	2,233	6,592	2.95	10,548
1982	1,690	4,715	2.79	5,488
1983	1,865	6,381	3.42	9,268
1984	3,110	7,222	2.32	11,640
1985	3,687	10,704	2.90	15,723
1986	4,201	18,765	4.47	25,521
1987	4,751	24,310	5.12	33,881
1988	5,048	19,703	3.90	26,766
1989	3,893	15,106	3.88	23,811 [2]
1990	3,577	19,750	5.52	26,448

1 Excludes Canadian landings of halibut in U.S ports.
2 Revised data.

D) GROUNDFISH

Domestic groundfish landings were up 10 percent in 1990 to 69,504 tonnes. The landed value increased 24 percent to $55.7 million from $45.1 million in the previous year. The landed prices of many species of the groundfish rose in 1990. The most notable increase was shown by pollock which was up 80 percent to $0.27 per kg. Both dogfish and sablefish also showed substantial increases in their landed prices rising to $0.50 per kg. and $3.80 per kg. respectively.

The total wholesale value of groundfish production increased 22 percent in 1990, to $105.1 million. The wholesale value of most species of groundfish also increased with the exception of Pacific cod, flounder and skate. Turbot showed the most significant increase in total wholesale value, due to the increase in total landings, rising from $609 thousand in 1989 to $2.0 million in 1990. Sablefish also had a notable increase in value in 1990 rising 65 percent over the previous year to $29.2 million and contributing almost 28 percent to the groundfish total. The average wholesale price of frozen dressed Japanese cut products rose 75 percent from $4.83 per kg. in 1989 to $8.47 per kg. in 1990. Rockfish species including Pacific ocean perch and red snapper, worth $27.3 million wholesale, were responsible for 26 percent of the groundfish total. It should be noted that a small amount of processed product was derived from imported groundfish.

TABLE 28 - COMPARATIVE WHOLESALE VALUES OF MAJOR GROUNDFISH SPECIES

1988 - 1990

	1988 ($'000)	1989 ($'000)	1990 ($'000)
Sole	9,418	10,436	12,664
Rockfish[1]	28,836	25,324	27,349
Pacific Cod	10,974	10,078	7,433
Ling Cod	4,957	7,735	9,241
Sablefish	20,566	17,725	29,248
Flounder	121	176	120
Skate	230	172	96
Pollock	1,060	1,016	1,492
Turbot	260	609	2,031
Hake[2]	983	1,175	1,989
Dogfish	4,041	2,612	2,714
Other Groundfish[3]	4,406	9,120	10,743
TOTAL	85,852	86,178	105,120

1 Includes Pacific ocean perch, red snapper and other rockfish.
2 Excludes over-the-side sales to foreign vessels in co-operative fishing arrangements.
3 Includes other groundfish, portions, sticks and specialties, and groundfish meal and oil.

TABLE 29 - JOINT-VENTURE OR CO-OPERATIVE SALES OF PACIFIC HAKE TO FOREIGN NATIONS BY YEAR[1]

(1979 - 1990)

	POLAND		SOVIET UNION		GREECE		KOREA		JAPAN		TOTAL[2]	
	Tonnes	$'000	Tonnes	$'000	Tonnes	$'000	Tonnes	$'000	Tonnes	$'000	Tonnes	$'000
1979	3,102	445	1,131	162	-	-	-	-	-	-	4,233	607
1980	4,560	739	4,300	614	3,355	609	-	-	-	-	12,215	1,962
1981	4,998	826	7,232	1,190	4,929	894	-	-	-	-	17,159	2,910
1982	10,279	1,714	9,397	1,550	-	-	-	-	-	-	19,676	3,264
1983	13,465	2,270	14,192	2,363	-	-	-	-	-	-	27,657	4,633
1984	9,214	1,609	19,692	3,044	-	-	-	-	-	-	28,906	4,653
1985	13,306	2,248	-	-	-	-	-	-	-	-	13,306	2,248
1986	13,494	1,962	16,642	2,417	-	-	-	-	-	-	30,136	4,379
1987	26,514	4,260	18,231	2,930	-	-	2,856	459	-	-	47,601	7,649
1988	26,673	4,358	22,253	3,458	-	-	-	-	1,048	174	49,974	7,990
1989	26,252	4,174	26,870	4,144	-	-	-	-	12,980	1,908	66,102	10,225
1990	32,526	5,056	19,919	3,044	-	-	-	-	16,848	2,816	69,293	10,916

1 Does not include domestic hake catch or national allocations to the Soviet Union, Poland and Japan.

British Columbia domestic hake landings do not include joint-venture or co-operative fishing arrangements with foreign nations. In 1990, 69,293 tonnes worth approximately $10.9 million were purchased by the Soviet Union, Poland and Japan from Canadian fish harvesters.

2 Totals may not add, due to rounding.

E) SHELLFISH

In 1990, shellfish landings increased slightly to 21,521 tonnes, from 21,237 tonnes in 1989. Most shellfish species showed a fluctuation in landed quantities over the 1989 levels. Clams, sea cucumbers, shrimp and prawns all showed declines in their harvested quantities while crabs, oysters, sea urchins and other shellfish landings rose. The total landed value of all shellfish rose 2 percent in 1990 to $46.0 million, from $45.1 million in 1989. The landed price for geoducks dropped in 1990 to $2.65 per kg., 16 percent below the 1989 price of $3.17 kg. The average landed values of all other shellfish species rose in 1990, most notable was sea cucumbers with a value of $1.34 per kg., a 70 percent increase over the previous year. Shrimp, scallops, and abalone also showed significant increases of between 11 and 12 percent over the landed prices of 1989.

The total wholesale value of shellfish production in 1990 decreased by 5 percent from $72.3 million to $68.7 million. Clams, including geoducks, accounted for 36 percent of the total wholesale value of shellfish, crab 16 percent, shrimp and prawns 17 percent and sea urchins 16 percent. Oysters, abalone, mussels, octopus, scallops, sea cucumbers, squid and gooseneck barnacles accounted for the remaining 15 percent. Although the total wholesale value of sea urchin products was down slightly, red sea urchin products demonstrated significant increases in value with bulk roe prices up 82 percent to $23.27 per kg. and roe in trays up 54 percent to $39.86 per kg. It should be noted that the wholesale value of sea cucumbers and sea urchins includes product originating from outside British Columbia. It should also be noted that virtually all oyster harvests are of aquaculture origin.

TABLE 30 - COMPARATIVE WHOLESALE VALUES OF MAJOR SHELLFISH SPECIES

(1988 - 1990)

SPECIES	1988 ($'000)	1989 ($'000)	1990 ($'000)
Abalone	1,059	1,222	1,051
Clams	12,748[1]	11,341[1]	8,631[2]
Geoducks	16,066	15,275	16,152
Crabs	9,196	8,619	11,281
Octopus	561	527	406
Oysters	3,982	4,340	4,595
Shrimp	6,269	6,494	5,136
Prawns	5,769	8,844	6,860
Squid	120[3]	*	275
Mussels	15	*	17
Scallops	289	324	518
Sea Cucumbers[4]	1,994	1,774	2,297
Sea Urchins[5]	13,467	12,198	10,680
Gooseneck Barnacles	664	702	612
Other	-	648[6]	142[7]
TOTAL	72,199	72,308	68,653

1 Includes horse clams.
2 Includes horse clams, as well as mussels and clams from aquaculture tenures.
3 Includes products derived from squid originating outside of B.C. waters.
4 Includes product derived from imported sea cucumbers.
5 Includes product derived from imported sea urchins.
6 Includes squid, mussels, plankton and other shellfish n.e.s.
7 Includes plankton and other shellfish n.e.s.

* Confidential. Less than three companies reporting.

F) AQUACULTURE PRODUCTION

SUMMARY OF THE B.C. AQUACULTURE INDUSTRY

The aquaculture industry in British Columbia continued to show healthy growth as it entered the 1990's. Based on farm cash receipts, aquaculture was ranked fourth among British Columbia's agribusinesses behind dairy products, cattle and chickens.

The four major production groups, two finfish and two shellfish, all showed increases in harvests in 1990. Specifically, farmed salmon harvests increased 30 percent to 15,486 tonnes, freshwater trout harvests rose 27 percent to 109 tonnes, oyster harvests were up 22 percent to 4,547 tonnes and clam harvests increased 26 percent to 39 tonnes.

The total farm gate value of the British Columbia aquaculture industry was worth $82.9 million in 1990, an increase of 31 percent over the 1989 total of $63.1 million. The production of farmed salmon was worth $78.6 million in 1990, and accounted for 95 percent of the total aquaculture landed value.

Trout farming is the mainstay of the B.C. freshwater aquaculture industry and in 1990 generated $536 thousand in food market sales, a one percent share of the provincial aquaculture total.

The Pacific oyster continued to be the primary species in B.C.'s shellfish aquaculture sector with a landed value of $3.6 million and contributing 4 percent of the aquaculture total. The Manila clam farm sales rose in 1990 to a value of $140 thousand, a 46 percent increase.

A variety of other species were being cultured in small or experimental quantities in the British Columbia aquaculture industry. The Japanese scallop, blue mussel and common carp all showed some harvests during 1990 but the data remained confidential. The European oyster, crayfish, sockeye salmon, and a new culture species Arctic charr brought in from Manitoba as early as 1987, were also held in commercial aquaculture facilities during 1990.

In 1990, the Ministry of Agriculture, Fisheries and Food gained the responsibility of licensing all commercial aquaculture operations in British Columbia. In this first licensing year, Aquaculture Licences were issue to 158 marine salmon sites, 437 marine shellfish sites and 88 freshwater trout farming operations.

TABLE 31 - AQUACULTURE PRODUCTION IN BRITISH COLUMBIA 1982 - 1990

		1982	1983	1984	1985	1986	1987	1988	1989	1990
MARINE PEN REARED SALMONIDS	Tonnes	273	128	107	120	400	1,931	6,590	11,883[1]	15,486
	$'000	1,136	708	702	820	2,728	12,872	39,084	59,739	78,646
TROUT	Tonnes	74	77	71	83	101	90	113	86	109
	$'000	n/a	441	433	435	569	442	505	374	536
CARP	Tonnes	n/a	14	11	9	*	4	10	*	*
	$'000	n/a	n/a	n/a	23	*	14	20	*	*
CHARR	Tonnes	-	-	-	-	-	-	-	-	*
	$'000	-	-	-	-	-	-	-	-	*
OYSTERS	Tonnes	1,579	2,453	2,897	3,420	2,864	3,482	3,702	3,721	4,547
	$'000	981	1,554	2,109	2,163	2,515	2,548	2,725	2,938	3,613
CLAMS	Tonnes	-	-	-	4	7	25	30	31	39
	$'000	-	-	-	4	14	43	59	96	140
MUSSELS	Tonnes	-	-	-	n/a	6	14	*	*	*
	$'000	-	-	-	4	16	36	*	*	*
SCALLOPS	Tonnes	-	-	-	-	-	*	*	*	*
	$'000	-	-	-	-	-	*	*	*	*

1 Revised data.
* Confidential. Fewer than three companies reporting.

1. SALMON

In previous years the harvest quantity and farm gate value of farmed salmon has been based on data collected by the Ministry of Agriculture, Fisheries and Food (MAFF) in the Annual Aquaculture Statistical Reports (AASR). During 1990, the salmon farming industry underwent substantial company consolidation and streamlining which resulted in incomplete or missing AASR. Based on AASR collected for 1990, there were 134 sites operating during the calendar year with 111 reporting harvests of food market sales. The data from the 1990 AASR as reported by industry are shown in Table 32A.

The British Columbia Salmon Farmers Association (BCSFA), in conjunction with an independent auditor, carried out an annual survey of processors of farmed salmon. The data from this survey is used to determine the approximate total throughput of dressed product only, no data is collected on farm gate value. The results of the 1990 BCSFA survey are shown in Table 32B.

The processed quantities and wholesale values of farmed salmon products are collected by MAFF in the same way that they are collected for the commercial fisheries sector. The resulting processed quantities were converted back to a round weight equivalent and the BCSFA harvest estimates, rather than the AASR data, closer matched these expected harvest volumes. Therefore, in 1990 we have used the BCSFA dressed weights to calculate a round weight harvest equivalent figure that has been used throughout this publication for the landed weight of farmed salmon. The average price per kilogram as reported by industry, and shown in Table 32A, was used to calculate the 1990 landed value.

Chinook continued to dominate the British Columbia salmon farming industry in 1990, with a harvest of 11,977 tonnes and accounting for 77 percent of the total marine finfish production. Farmers reported receiving $4.83 per kg. for chinook at the farm gate. The total value this generated was $57.8 million. Atlantic salmon displaced coho as the number two species, in 1990, with a 28 percent increase in harvest to 1,790 tonnes, a 12 percent share of the total. Part of the popularity of Atlantic salmon is the high price it commands in the market place, in 1990 farmers reported receiving $7.41 per kg. for a total landed value of $13.2 million. Coho production dropped 17 percent from the previous year to 1,509 tonnes and a 10 percent share of the volume. The total farm gate value for coho in 1990 was $6.6 million with an average price of $4.37 per kg. Marine grown rainbow trout (steelhead) accounted for only 1 percent of the total 1990 production with 210 tonnes harvested, but with a competitive price of $4.47 per kg. the total farm gate value was just under $1 million.

The Northeast Vancouver Island region produced 37 percent of the total salmon harvest but due to the high concentration of Atlantic salmon farming the area contributed 43 percent to the total landed value. The Sunshine Coast was the second largest producing region with 32 percent of the volume and sales. The West Coast Vancouver Island

area contributed 22 percent of the volume and 19 percent of the total B.C. value. The remainder of British Columbia farmed salmon production originated from the South East Vancouver Island and North Coast regions for a total of 8 percent of the volume and 5 percent of the value.

The wholesale value of farmed salmon in 1990, was up 17 percent to $85.1 million with 89 percent of the total generated from fresh dressed products. Fresh dressed chinook at $59.5 million, contributed 70 percent of the total value of all farmed salmon products. Steelhead were marketed solely in fresh dressed form. Atlantic salmon products consistently brought higher prices than any other farmed salmon species peaking at $27.76 per kg. for smoked products. The total wholesale value of all farmed salmon products was 8 percent above the farm gate value.

TABLE 32A - FARMED SALMON PRODUCTION - 1990[1]

	Round Weight Harvest (tonnes)	Farm Gate Value ($'000)	Average Price ($/kg)
Chinook	9,285	44,965	4.83
Coho	887	3,850	4.37
Steelhead	190	851	4.47
Atlantic	1,168	8,652	7.41
TOTAL	11,530	58,318	-

1 Source: MAFF Annual Aquaculture Statistical Reports

TABLE 32B - FARMED SALMON PRODUCTION - 1990

	Dressed[1] Weight (tonnes)	Round[2] Weight (tonnes)	Farm Gate[3] Value ($'000)	Wholesale[4] Value ($'000)
Chinook	10,396	11,977	57,849	66,526
Coho	1,296	1,509	6,594	7,155
Steelhead	180	210	939	1,034 [5]
Atlantic	1,640	1,790	13,264	10,374
TOTAL	13,512	15,486	78,646	85,089

1 Source: B.C. Salmon Farmers Association
2 Calculated using species specific conversion factors for fresh-dressed head-on marine pen-reared farmed salmon.
3 Calculated by applying the average $/kg for round product as reported on MAFF Annual Aquaculture Statistical Reports to the round weight quantities.
4 Source: MAFF Annual Fisheries Production Schedules.
5 Includes a small amount of imported farmed freshwater trout.

TABLE 33 - BRITISH COLUMBIA FARMED SALMON PRODUCTION - 1979 - 19901

	COHO		CHINOOK		STEELHEAD/ RAINBOW TROUT		ATLANTIC		TOTAL PRODUCTION	
	(Tonnes)	($'000)	(Tonnes)	($'000)	(Tonnes)	($'000)	(Tonnes)	($'000)	(Tonnes)	($'000)
1979	41	157	-	-	-	-	-	-	41	157
1980	157	898	-	-	-	-	-	-	157	898
1981	176	985	-	-	-	-	-	-	176	985
1982	230	908	43	228	-	-	-	-	273	1,136
1983	73	350	55	358	-	-	-	-	128	708
1984	64[2]	306	43	396	-	-	-	-	107	702
1985	66[2]	395	54	425	-	-	-	-	120	820
1986	304	2,014	87	642	9[3]	72	-	-	400	2,728
1987[4]	790	4,990	949	7,018	192[3]	864	-	-	1,931	12,872
1988[4]	2,775	14,035	3,550	23,540	185	917	80	592	6,590	39,084
1989[4]	1,815	8,012	8,514	42,617	274	1,061	1,280	8,049	11,883	59,739
1990[4,5]	1,509	6,594	11,977	57,849	210	939	1,790	13,264	15,486	78,646

1 Source: British Columbia Annual Fisheries Production Statistics and British Columbia Commercial Fish Farm Statistics.
2 Includes an unspecified amount of marine pen-reared rainbow trout.
3 Includes an unspecified amount of "other" species.
4 Quantities are reported in round weight.
5 Quantities based on B.C. Salmon Farmers Association data. Value is derived using average price data from MAFF Annual Aquaculture Statistical Reports.

TABLE 34 - PRODUCTION AND UTILIZATION OF FARMED SALMON BY SPECIES - 1990

	FRESH DRESSED			FROZEN DRESSED			FROZEN STEAKS AND FILLETS			HOT AND COLD SMOKED			TOTAL[1]	
	000kg	$'000	$/kg[2]	000kg	$'000	$/kg[2]	000kg	$'000	$/kg[2]	000kg	$'000	$/kg[2]	000kg	$'000
Chinook	9,702	59,539	6.14	197	448	2.28	375	2,767	7.39	154	3,425	22.26	10,428	66,179
Coho	843	4,821	5.72	346	1,901	5.50	*	*	10.27	*	*	24.01	1,189	6,722
Steelhead	190	933	4.91	-	-	-	-	-	-	-	-	-	190	933
Atlantic	1,189	10,224	8.60	*	*	5.71	*	*	18.74	*	*	27.76	1,189	10,224
TOTAL[3]	11,924	75,517	-	543	2,349	-	375	2,767	-	154	3,425	-	12,996	84,058

1 Excludes a small amount of "other" farmed salmon products, freshwater trout, and confidential items with a combined wholesale value of $1,031 thousand.

2 Value divided by quantity may not equal average price due to rounding.

3 Excludes products that were reported by less than three companies.

* Confidential. Less than three companies reporting.

2. OYSTERS

Shellfish aquaculture in British Columbia is dominated by the production of the Pacific oyster. This is the oldest continually cultured species in the province. In 1990 the total oyster harvest increased 22 percent over the previous year to 4,547 tonnes. The total farm gate value for the oyster farming industry increased by 23 percent to $3.6 million. Virtually all B.C. oyster harvest is of cultured origin with a very small amount of wild oysters harvested under Ministry-issued picking permits.

The use of hatchery produced eyed larvae for seed production has almost completely replaced the collection of wild seed. The majority of eyed larvae continued to be imported from the United States.

The total wholesale value of oyster products rose 6 percent in 1990 to $4.6 million. Almost 30 percent of the total wholesale value of oyster products, in 1990 was derived from half-shell sales. This product type however continued to decrease for the third year in a row, down 10 percent to 386,241 dozen from 430,062 dozen reported in 1989.

During 1990 there were 261 companies operating 437 licensed shellfish farms in British Columbia.

TABLE 35 - BRITISH COLUMBIA OYSTER PRODUCTION - 1976 - 1990

	Production[1,2] (Tonnes)	Landed Value[3] ($'000)
1976	3,245	887
1977	2,998	981
1978	2,793	1,021
1979	2,231	893
1980	1,922	1,134
1981	1,415	1,030
1982	1,579	981
1983	2,453	1,554
1984	2,897	2,109
1985	3,420	2,613
1986	2,864	2,515
1987	3,482	2,548
1988	3,702	2,725
1989	3,721	2,938
1990	4,547	3,613

1 1976 - 1980 production data was provided by the Department of Fisheries and Oceans and 1981 - 1990 data was provided by the Aquaculture Operations Section, Ministry of Agriculture, Fisheries and Food.

2 Includes a small amount of wild oyster harvest from picking permits, after 1980.

3 The landed value from 1987 onward is relatively lower than previous years as it more accurately reflects a "farm gate" selling price.

3. FRESHWATER TROUT

The farmed rainbow trout industry reported a total of 109 tonnes of food market sales in 1990, representing a 27 percent increase in production over the previous year. The total farm gate value of these sales increased 43 percent to $536 thousand. In addition, approximately 7 tonnes of rainbow trout was harvested through "U-Catch-Em" (fee fishing) sales with a reported value of $69 thousand.

There were 88 freshwater commercial aquaculture licence holders in 1990. Of these licence holders, 55 (or 63 percent) reported food market or fee fishing sales. Four companies were responsible for 71 percent of the total freshwater aquaculture harvest volume and farm gate value.

TABLE 36 - BRITISH COLUMBIA FRESHWATER TROUT FARM PRODUCTION

1979 - 1990

	Production[1] (Tonnes)	Value ($'000)
1979	53	n/a
1980	56	n/a
1981	71	n/a
1982	74	n/a
1983	77	441
1984	71	433
1985	83	435
1986	101	569
1987	90	442
1988	113	505
1989	86	374
1990	109	536

1 Food Market Sales 1979 - 1985 data was provided by the Ministry of Environment and Parks, Fisheries Branch, in "B.C. Commercial Fish Farm Statistics".

G) MAJOR SPECIES BY PRODUCT TYPE

The following table "Landings and Products Processed in B.C. - 1990" is one of the cornerstones of the Fisheries Production Statistics of British Columbia. For each species, a summary of catch and landed value data is provided, along with data on the final quantity, wholesale value and average wholesale price for each product type. Virtually all tables throughout the report utilize data from this table.

TABLE 37 - LANDINGS AND PRODUCTS PROCESSED IN B.C. - 1990[1]

SPECIES	QUANTITY (Tonnes)	VALUE ($'000)	AVG. PRICE[2] ($/KG)
ABALONE			
Landed	50	1,347	26.94
Processed:			
In Shell	37	1,040	28.11
Other[3]	-	11	-
Total Wholesale Value	-	1,051	-
CLAMS			
Butter Clams Landed[4]	-	-	-
Processed:			
Meat, Fresh or Frozen[5]	36	138	3.83
Other	-	12	-
Total Wholesale Value	-	150	-
Geoduck Clams Landed	3,992	10,582	2.65
Processed:			
Live	1,325	5,465	4.12
Neck Meat	687	9,835	14.32
Body Meat	367	832	2.27
Other[6]	-	20	-
Total Wholesale Value	-	16,152	-
Littleneck Clams Landed[4]	-	-	-
Processed:			
Fresh	1,676	7,045	4.20
Other[7]	-	777	-
Total Wholesale Value	-	7,822	-
Other Clams Landed[8]	2,651	5,567	2.10
Processed:			
Fresh or Frozen	13	43	3.31
Other[9]	-	616	-
Total Wholesale Value	-	659	-
CRABS			
Landed	2,167	9,311	4.30
Processed:			
In Shell, Fresh	1,612	8,811	5.47
In Shell, Frozen	6	69	11.50
Meat, Fresh	34	897	26.38
Meat, Frozen	11	318	28.91
Cooked[10]	-	1,186	6.54
Total Wholesale Value	-	11,281	-

TABLE 37 - CONT'D

SPECIES	QUANTITY (Tonnes)	VALUE ($'000)	AVG. PRICE[2] ($/KG)
DOGFISH			
Landed	4,109	2,045	0.50
Processed:			
Fresh Round	1,480	579	0.39
Frozen	481	700	1.46
Flaps	81	321	3.96
Backs	425	868	2.04
Fins & Tails	43	246	5.72
Total Wholesale Value	-	2,714	-
EULACHONS			
Landed	20	22	1.10
Processed:			
Fresh and Frozen	10	15	1.50
Total Wholesale Value	-	15	-
FLOUNDER			
Landed	143	82	0.57
Processed:			
Fresh Round	7	2	0.29
Fillets, Fresh	21	85	4.05
Fillets, Frozen[11]	11	33	3.00
Total Wholesale Value	-	120	-
GOOSENECK BARNACLES			
Landed	37	413	11.16
Processed:			
Fresh[12]	34	612	18.00
Total Wholesale Value	-	612	-
GREY/PACIFIC COD			
Landed	6,233	3,375	0.54
Processed:			
Fresh Round	210	170	0.81
Fresh Dressed	6	18	3.22
Fillets, Fresh	1,262	5,428	4.30
Fillets, Frozen	342	1,557	4.55
Other[13]	-	260	-
Total Wholesale Value	-	7,433	-
HAKE			
Landed[14]	10,160	1,917	0.19
Processed:			
Fresh Round[15]	9,596	1,810	0.19
Other	-	179	-
Total Wholesale Value	-	1,989	-

TABLE 37 - CONT'D

SPECIES	QUANTITY (Tonnes)	VALUE ($'000)	AVG. PRICE[2] ($/KG)
HALIBUT			
Landed[14]	3,784	21,065	5.57
Processed:[16]			
Fresh Dressed	2,018	13,145	6.51
Frozen Dressed	1,714	11,579	6.76
Fillets, Fresh	3	40	13.33
Fillets, Frozen	123	1,732	14.08
Fletches, Frozen	9	122	13.56
Steaks, Frozen	85	905	10.65
Other[17]	-	240	-
Total Wholesale Value	-	27,763	-
HERRING			
Landed[18]	41,280	81,473	1.97
Processed:			
Bait, Fresh or Frozen	879	1,738	1.98
Frozen for Food	299	1,381	4.62
Body and Offal Meal	3,724	2,484	0.69
Roe[19]	6,132	153,897	25.10
Spawn on Kelp	224	8,304	37.07
Other[20]	-	1,469	-
Total Wholesale Value	-	169,273	-
LING COD			
Landed	5,054	3,667	0.73
Processed:			
Fresh Round	591	597	1.01
Fresh Dressed	320	673	2.10
Frozen Dressed	179	410	2.29
Fillets, Fresh	685	2,921	4.26
Fillets, Frozen	424	1,903	4.49
Other[21]	-	2,737	-
Total Wholesale Value	-	9,241	-
OCTOPUS			
Landed	197	657	3.34
Processed:			
Fresh	54	218	4.04
Frozen	17	90	5.29
Bait	24	98	4.08
Total Wholesale Value	-	406	-

TABLE 37 - CONT'D

SPECIES	QUANTITY (Tonnes)	VALUE ($'000)	AVG. PRICE[2] ($/KG)
OYSTERS			
Landed	4,547	3,613	0.79
Processed:			
Half Shell (dozens)	386,241	1,370	3.55
Meat, Fresh, 8 oz.	34	321	9.44
Meat, Fresh, 16 oz.	12	102	8.50
Meat, Fresh, 32 oz.	232	1,897	8.18
Meat, Fresh, 128 oz.	89	729	8.19
Other[22]	-	176	-
Total Wholesale Value	-	4,595	-
PACIFIC OCEAN PERCH			
Landed	5,595	2,981	0.53
Processed:			
Fresh Round	1,461	1,014	0.69
Fillets, Fresh	1,049	1,164	1.11
Fillets, Frozen	381	1,347	3.53
Other[23]	-	220	-
Total Wholesale Value	-	3,745	-
POLLOCK			
Landed	676	185	0.27
Processed:			
Fresh Round	149	43	0.29
Fillets, Fresh	66	234	3.55
Fillets, Frozen	90	327	3.63
Other[24]	-	888	-
Total Wholesale Value	-	1,492	-
PRAWNS			
Landed	761	7,006	9.21
Processed:			
Fresh	185	1,836	9.92
Frozen	365	4,490	12.30
Tails	27	511	18.93
Other[25]	-	23	-
Total Wholesale Value	-	6,860	-
RED SNAPPER			
Landed[26]	-	-	-
Processed:			
Fresh Round	606	1,176	1.94
Fresh Dressed	8	19	2.38
Frozen Dressed	69	201	2.95
Fillets, Fresh	1,937	7,991	4.13
Fillets, Frozen	531	1,982	3.73
Other[27]	-	149	-
Total Wholesale Value	-	11,518	-

TABLE 37 - CONT'D

SPECIES	QUANTITY (Tonnes)	VALUE ($'000)	AVG. PRICE[2] ($/KG)
ROCKFISH			
Landed	22,143	15,462	0.70
Processed:			
Fresh Round	6,569	3,653	0.56
Fresh Dressed	10	18	1.84
Frozen Dressed	494	1,478	2.99
Fillets, Fresh	1,170	4,086	3.49
Fillets, Frozen	687	2,592	3.77
Other[28]	-	259	-
Total Wholesale Value	-	12,086	-
SABLEFISH			
Landed	5,125	19,434	3.80
Processed:			
Fresh Round	101	182	1.80
Fresh Dressed	31	132	4.26
Frozen Dressed, Japanese Cut	3,310	28,042	8.47
Frozen Dressed, Western Cut	33	155	4.70
Fresh and Frozen Fillets	23	154	6.70
Smoked, Dressed	51	457	8.96
Smoked Fillets[29]	13	126	9.69
Total Wholesale Value	-	29,248	-
SALMON			
Landed[30]	92,466	263,413	2.85
Processed:[31]			
Fresh Round	3,930	15,867	4.04
Frozen Round	55	167	3.04
Fresh Dressed	6,306	29,787	4.72
Frozen Dressed	30,571	183,104	5.99
Frozen Fillets & Steaks	320	3,137	9.80
Salted[32]	504	5,977	11.86
Smoked[33]	1,328	19,457	14.65
Canned (48 lb. cases)	1,685,617	288,348	171.06
Portion Pack/Specialty Products	32	532	16.63
Minced	72	300	4.17
Caviar	162	4,935	30.46
Roe[34]	1,204	10,421	8.66
Other[35]	-	2,258	-
Total Wholesale Value	-	564,290	-

TABLE 37 - CONT'D

SPECIES	QUANTITY (Tonnes)	VALUE ($'000)	AVG. PRICE[2] ($/KG)
MARINE PEN-REARED (FARMED) SALMON			
Landed	15,486	78,646	5.08
Processed:[36]			
Fresh Dressed	11,927	75,533	6.33
Frozen Dressed	544	2,355	4.33
Frozen Steaks & Fillets	394	2,964	7.52
Smoked	169	3,795	22.46
Minced	30	153	5.10
Other[37]	-	340	-
Total Wholesale Value	-	85,089	-
SCALLOPS			
Landed	68	317	4.66
Processed:			
In Shell, Fresh	69	284	5.22
Meat, Fresh and Frozen	8	106	13.25
Other[38]	-	52	-
Total Wholesale Value	-	518	-
SEA CUCUMBERS			
Landed	869	1,168	1.34
Processed:[39]			
Fresh	16	21	1.31
Meat	131	2,010	15.34
Skins	50	266	5.32
Total Wholesale Value	-	2,297	-
SEA URCHINS, GREEN			
Landed	481	948	1.97
Processed:[40]			
Whole	640	2,031	3.17
Other[41]	-	36	-
Total Wholesale Value	-	2,067	-
SEA URCHINS, RED			
Landed	3,158	1,953	0.62
Processed:[40]			
Roe in trays	112	4,464	39.86
Roe, bulk	163	3,793	23.27
Other[42]	-	356	-
Total Wholesale Value	-	8,613	-
SHRIMP			
Landed	1,940	2,637	1.36
Processed:			
Fresh	127	442	3.48
Frozen	65	337	5.18
Shrimp Meat, Fresh	262	3,026	11.55
Shrimp Meat, Frozen	116	1,284	11.07
Other[43]	-	47	-
Total Wholesale Value	-	5,136	-

TABLE 37 - CONT'D

SPECIES	QUANTITY (Tonnes)	VALUE ($'000)	AVG. PRICE[2] ($/KG)
SKATE			
Landed	183	37	0.20
Processed:			
Fresh	14	11	0.79
Wings, skin on	10	23	2.30
Wings, skinless	25	62	2.48
Total Wholesale Value	-	96	-
SOLE			
Dover Sole Landed[44]	-	-	-
Processed:			
Fresh Round	812	575	0.71
Fillets, Fresh	227	1,223	5.39
Fillets, Frozen	27	142	5.26
Other[45]	-	1	-
Total Wholesale Value	-	1,941	-
English Sole Landed[44]	-	-	-
Processed:			
Fresh Round	30	28	0.93
Fillets, Fresh	154	959	6.23
Fillets, Frozen	14	89	6.36
Other[46]	-	1	-
Total Wholesale Value	-	1,077	-
Petrale Sole Landed[44]	-	-	-
Processed:			
Fresh Round	194	404	2.08
Frozen Round	31	98	3.16
Fillets, Fresh	209	1,857	8.89
Fillets, Frozen	16	160	10.00
Total Wholesale Value	-	2,519	-
Rock Sole Landed[44]	-	-	-
Processed:			
Fresh Round	131	108	0.82
Frozen Round	61	177	2.90
Dressed, Fresh/Frozen	8	43	5.38
Fillets, Fresh	417	2,583	6.19
Fillets, Frozen	103	576	5.59
Total Wholesale Value	-	3,487	-

TABLE 37 - CONT'D

SPECIES	QUANTITY (Tonnes)	VALUE ($'000)	AVG. PRICE[2] ($/KG)
Other Sole Landed	7,041	5,469	0.78
Processed:			
Fresh Round	84	97	1.15
Frozen Round	113	198	1.75
Fillets, Fresh	434	2,533	5.84
Fillets, Frozen	180	750	4.17
Other[48]	-	62	-
Total Wholesale Value	-	3,640	-
STURGEON			
Landed	9	16	1.78
Processed:			
Fresh	5	23	4.60
Frozen	1	6	6.00
Other[49]	-	11	-
Total Wholesale Value	-	40	-
TUNA			
Landed	275	830	3.02
Processed:			
Fresh	29	92	3.17
Frozen	211	671	3.18
Other[50]	-	138	-
Total Wholesale Value	-	901	-
TURBOT			
Landed	2,602	601	0.23
Processed:			
Round, Fresh	664	245	0.37
Fillets, Fresh	31	83	2.68
Fillets, Frozen	505	1,703	3.37
Total Wholesale Value	-	2,031	-
MISCELLANEOUS FISH			
Landed[51]	1,257	1,434	1.14
Processed:			
Other Products[52]	-	11,603	-
Total Wholesale Value	-	11,603	-

TABLE 37 - CONT'D - FOOTNOTES

1 Any discrepancy in value figures is due to rounding.
2 Average price is based on totals prior to rounding.
3 Includes other abalone products.
4 Included in "other clams".
5 Includes canned, nectar, chowder, fresh and frozen, and other butter clam products.
6 Includes fresh and frozen meat, and other geoduck products.
7 Includes frozen whole and fresh and frozen littleneck meat products.
8 Includes horse clams, mussels and clams from aquaculture leases.
9 Includes bait, horse clam body and neck meat, fresh and frozen, meat, and other clam products.
10 Includes a small amount of other crab products.
11 Includes fresh/frozen dressed flounder and other flounder products.
12 Includes a small amount of other gooseneck barnacle products.
13 Includes fresh dressed, blocks and other Pacific cod products.
14 Includes direct delivery by Canadian fish harvesters to U.S. ports.
15 Includes small amount of frozen and other hake products.
16 Includes halibut products derived from imported halibut.
17 Includes blocks and other halibut products.
18 Includes herring spawn on kelp.
19 Includes mature and immature roe, some of which was derived from imported herring.
20 Includes fresh and dry-salted herring and sardines, animal feed, pickled, kippered snacks, fillets, body and offal oil, and other herring products.
21 Includes surimi, frozen steaks and other ling cod products.
22 Includes in-shell, canned and other oyster products.
23 Includes fresh and frozen dressed and other Pacific Ocean Perch products.
24 Includes frozen, roe, surimi and other pollock products, some of which was derived from imported pollock.
25 Includes frozen cooked whole, frozen meat, and other prawn products.
26 Included in rockfish.
27 Includes other red snapper products.
28 Includes blocks and other rockfish products.
29 Includes a small amount of other sablefish products.
30 Includes salmon roe.
31 Includes salmon products derived from imported salmon.
32 Includes hot and cold smoked and specialty smoked products.
33 Includes specialty packs.
34 Includes suchiko, salmon roe, and roe for bait.
35 Includes offal, offal meal, oil, heads, bait, milts, animal feed and other salmon products.
36 Includes freshwater trout.
37 Includes round, canned and other farmed salmon products.
38 Includes scallops in shell frozen, and other scallop products.
39 Includes sea cucumber products derived from imported sea cucumber.
40 Includes sea urchin products derived from imported sea urchins.
41 Includes bulk roe and other green sea urchin products.
42 Includes whole and other red sea urchin products.
43 Includes canned shrimp and other shrimp products.
44 Included in "other sole."

TABLE 37 - CONT'D - FOOTNOTES

45 Includes frozen round, fresh/frozen dressed and other dover sole products.
46 Includes frozen round, fresh/frozen dressed and other english sole products.
47 Includes a very small amount of fresh/frozen dressed petrale sole.
48 Includes fresh/frozen dressed, blocks and other sole products.
49 Includes frozen, smoked, and other sturgeon products.
50 Includes canned and other tuna products. Also includes tuna products derived from imported tuna (U.S. or International water origin).
51 Includes non food fish, idiotfish, plankton, shark, snails, squid, smelt, hagfish, anchovies, crayfish, other fish and shellfish n.e.s.
52 Includes "other groundfish," "portions, sticks and specialty" products some of which may contain imported fish, fish meal n.e.s., fish oil n.e.s., marine plants, plankton, smelt, mackerel, hagfish, and "other fish".

III. LICENSING OF THE B.C. FISHING AND FISH PROCESSING SECTORS - 1990

The total number of personal commercial fishing licences issued by the Department of Fisheries and Oceans (DFO) in 1990 decreased by 10 percent from 16,484 in 1989 to 14,768. Given the continued issuance of the 1- and 5-year licences, the overall change in the number of licences issued may not actually reflect a change in the number of people licensed to fish (i.e. holders of 5-year licences only renew every five years). A total of 1,249 5-year licences, as well as 13,519 traditional 1-year licences were issued in 1990 compared to 1,612 and 14,784 issued in the previous year. It should be noted that 7,035 5-year licences issued in previous years were valid during 1990 bringing the total number of eligible fish harvesters to 20,554.

Overall the number of licences issued by DFO for limited entry commercial fisheries remained relatively constant with most categories displaying only minor fluctuations. In 1990, shrimp trawl licences (Z-H) became limited entry and as a result the number of licences issued fell to 249 from 901 issued in the previous year. There were some significant changes in the number of unlimited entry fisheries licences issued. The Z-N licences for rockfish by hook and line gear showed a continued increase in number of licences issued as did Z-J licences for octopus. Two new unlimited entry licence categories were created in 1990; eleven "Y" licences for export of salmon and herring were issued in addition to 495 Crab "R" licences.

Each facility or operation in British Columbia, which processes or buys fish is required to be licensed by the Ministry of Agriculture, Fisheries and Food (MAFF). Decals are issued with the licence and specify the category of processing or buying they may undertake. Each licence therefore, may have multiple decals associated with it.

The number of fish processing licences issued by MAFF decreased by 7 percent in 1990, from 253 to 236, including 10 for processing at sea. The number of processing licence decals issued dropped slightly for most categories except for commercial salmon cannery and roe herring which rose slightly. Only one marine plant processing licence decal was issued in 1990.

In 1990, a total of 559 fish buying licences were issued, compared to 580 issued the previous year. The number of fish buying licence decals issued in 1990 decreased in all but the roe herring category. Specifically, the number of fish buying decals issued were: 255 for salmon, 235 for roe herring, 92 for other finfish and 76 for invertebrates. A total 171 fisherman's vending licenses were also issued 1990.

The Ministry of Agriculture, Fisheries and Food also issued 119 oyster picking permits and 35 marine plant harvesting licences. A total of 156 tonnes of marine plants were harvested in 1990.

TABLE 38 - PERSONAL COMMERCIAL FISHING LICENCES ISSUED BY THE DEPARTMENT OF FISHERIES AND OCEANS

BY DISTRICT 1988 - 1990[1]

	1988		1989		1990	
	1-Year	5-Year[2]	1-Year	5-Year[2]	1-Year	5-Year[2]
KAMLOOPS	15	-	24	-	16	-
NEW WESTMINSTER	2,282	346	2,428	498	2,214	318
NANAIMO	4,450	180	3,794	187	3,120	161
PORT ALBERNI	1,420	25	1,256	44	1,230	60
CAMPBELL RIVER	2,219	138	2,233	148	2,275	158
PRINCE RUPERT	2,233	203	1,975	174	1,960	127
VICTORIA	1,538	127	1,343	133	1,109	98
VANCOUVER	1,864	548	1,742	428	1,523	327
WHITEHORSE	39	-	79	-	72	-
TOTAL	16,060	1,567	14,874	1,612	13,519	1,249

1 Information provided by the Licensing Section, Department of Fisheries and Oceans, Pacific Region.

2 A total of 5,236 5-year licences were valid during 1988, 6,250 during 1989, and 7,035 during 1990 as of December 31.

TABLE 39 - COMMERCIAL FISHING LICENCES ISSUED BY THE THE DEPARTMENT OF FISHERIES AND OCEANS BY FISHERY AND LICENCE CATEGORY 1988 - 1990[1]

LIMITED ENTRY LICENCES

FISHERY	LICENCE CATEGORY	1988	1989	1990
SALMON				
General	A	3,687	3,683	3,684
Seine	A	549	549	548
Temporary	B	2	1	1
N.N.F.C.[2]	N	253	254	253
Salmon Subtotal		4,491	4,487	4,486
ROE HERRING				
Gillnet	H	1,327	1,327	1,327
Seine	H	252	252	252
Roe Herring Subtotal		1,579	1,579	1,579
SPAWN ON KELP	J	28	28	28
HALIBUT	L	435	435	435
GROUNDFISH TRAWL	T	142	142	141
SHRIMP[3]	Z-H	677	901	249
SHRIMP TRAWL	S	249	248	247
SABLEFISH	K	47	48	48
ABALONE	E	26	26	26
GEODUCK	G	55	55	55
SELECTED SPECIES	C	1,084	1,085	997

1 Information provided by the Licensing Section, Department of Fisheries and Oceans, Pacific Region.
2 Northern Native Fishing Corporation exclusive licences.
3 Licence category Z-H was changed from an unlimited to a limited entry licence in 1990.

TABLE 40 - COMMERCIAL FISHING LICENCES ISSUED BY THE DEPARTMENT OF FISHERIES AND OCEANS

SPECIAL FISHERIES (Z) - UNLIMITED ENTRY 1988 - 1990[1]

FISHERY	LICENCE CATEGORY	1988	1989	1990
Packing	D	182	219	224
Processor	P	11	16	17
Crab[2]	R	-	-	495
Export[2]	Y	-	-	11
SPECIAL FISHERIES - FISHING WITH A VESSEL Z				
Green Sea Urchin[3]	Z-A	89	191	155
Weathervane Scallops	Z-B	5	7	-
Red Sea Urchin	Z-C	184	240	188
Sea Cucumber	Z-D	160	245	215
Squid Species	Z-E	72	72	88
Euphausiid	Z-F	31	45	56
Pink or Spiny Scallop	Z-I	34	43	59
Octopus	Z-J	188	257	350
Anchovy	Z-K	9	24	20
Surf and Pile Perch	Z-L	25	40	36
Herring other than Roe Herring	Z-M	18	23	21
Rockfishes	Z-N	2,105	2,319	2,396
Six-gill sharks	Z-O	35	29	33
SPECIAL FISHERIES - FISHING WITHOUT A VESSEL Z[4]				
Mussel	Z-1	43	20	21
Clam[5]	Z-2	-	1,870	2,068
Goose Barnacle	Z-6	467	130	137
Smelt	Z-8	67	66	54
Eulachon	Z-9	5	3	3

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1 Information provided by the Licencing Section, Department of Fisheries and Oceans, Pacific Region.
2 Licence categories R and Y were created in 1990.
3 Licence category Z-A reassigned to Green Sea Urchin in 1988.
4 Licence category Z-7 phased out in 1989.
5 Licence category Z-2 reassigned to commercial clam harvesting in 1989.

TABLE 41 - FISH PROCESSING, FISH BUYING AND FISHERMEN'S VENDING LICENCES ISSUED BY THE MINISTRY OF AGRICULTURE, FISHERIES AND FOOD

BY LICENCE TYPE 1988 - 1990[1]

	1988[2]	1989[3]	1990[3]
PROCESSING LICENCE DECALS			
Commercial Salmon Cannery	13	11 [5]	12
Sport Caught Fish[4]	9 [5]	3 [5]	4
Salmon	129	140	121
Roe Herring	35	34	35
Fin Fish	97	104	93
Invertebrates	129	129	114
Cold Storage:			
a. over 80 m^3	77	80	78
b. under 80 m^3	54	46	37
Marine Plants	3	2	1
Non-human consumption	9	11	8
BUYER LICENCE DECALS			
Salmon	294	318	255
Roe Herring	209	26 [6]	235
Fin Fish	116	107	92
Invertebrates	87	85	76
FISHERMAN'S VENDING LICENCES	149	169	171
OYSTER PICKING PERMITS	258	238	119
MARINE PLANT HARVESTING LICENCES	37 [7]	35 [7]	35 [7]

1 Fish processing and buying licences are assigned decals which indicate the category of processing or buying that may be conducted, as such, a licence may have multiple decals.

2 Covers fiscal year April 1 to March 31.

3 Beginning in January 1990, all licences issued changed to a calendar year basis.

4 In 1988 the Sport Caught Salmon Cannery category was replaced with the Sport Caught Fish processing category which includes all types of fish processing.

5 Data revised.

6 Due to a change to a new calendar year based licence in January 1990, most of the roe herring buyers licences, traditionally issued in the fiscal year will be accounted for in the new calendar year. Only 26 licences were issued prior to December 31, 1989, although the total number comparable to past years is estimated to be 235.

7 Includes licences issued for salicornia industry development, 10 issued in 1988, 10 in 1989 and 10 in 1990.

TABLE 42 - DISTRIBUTION OF BRITISH COLUMBIA FISH PROCESSING FACILITIES BY GEOGRAPHIC REGION[1]
1989 - 1990

Region	1989[2] Only Canning	1989[2] Only[4] Cold Storage	1989[2] Canning and Cold Storage	1989[2] Plant Only	1989[2] Total Plants	1990[3] Only Canning	1990[3] Only[4] Cold Storage	1990[3] Canning and Cold Storage	1990[3] Plant Only	1990[3] Total Plants
Lower Mainland	2	65	3	37	107	3	59	3	31	96
Southern Vancouver Island	1	17	-	27	45	1	17	1	33	52
West Coast Vancouver Island	-	4	-	7	11	-	4	-	7	11
Northern Vancouver Island	1	14	1	25	41	-	8	1	12	21
Sunshine Coast	-	8	-	10	18	-	7	-	11	18
Central Coast	-	2	-	2	4	-	2	-	2	4
North Coast/Prince Rupert	-	4	3	3	10	-	5	3	3	11
Queen Charlotte Islands	-	1	-	1	2	-	2	-	1	3
Interior of B.C.	-	2	-	1	3	-	3	-	-	3
TOTAL	4	117	7	113	241	4	107	8	100	219

1 Does not include vessels that were licensed to process or companies that leased space in licensed facilities. Sports fish canning facilities are included.
2 Based on Province of British Columbia Fiscal Year (April 1 to March 31).
3 Based on calendar year (January 1 to December 31).
4 This category may include facilities in which fresh/frozen fish products were processed.

IV. EMPLOYMENT IN THE B.C. FISH PROCESSING SECTOR

In 1987, a survey of processing facilities was conducted to gather information on the average number of employees involved within the sector. A second survey was undertaken for 1990. Data was compiled by month and geographic region based on the number of employees on payroll on the last working day of each month or at the end of a specific processing activity (i.e. roe herring) that concluded mid-month.

Overall, both surveys indicate a very similar pattern. Employment by month ranged from a low of 3,726 in December to a peak of 9,324 in August. The total average employment over the 1990 calendar year for all geographic regions was 5,624, with 61 percent of these employees being concentrated in the lower mainland area. This reflects a minor increase over the 5,539 recorded in 1987. The significant difference is the 96 percent increase (nearly doubling) of the employees in the Sunshine Coast region from an average of 113 in 1987 to 221 in 1990. This is likely attributable to the increase in aquaculture activities in the area.

An independent survey of the processing sector indicated that, in 1989, there were 5,700 direct man years of employment generated in the fish processing sector. (Source: The Economic Impacts of Fishing in British Columbia - 1988 - 1989, Price Waterhouse, May 1990).

TABLE 43 - REGIONAL EMPLOYMENT IN THE B.C. FISH PROCESSING SECTOR BY MONTH - 1990[1]

	Lower Mainland	Vancouver Island	Sunshine Coast	North Coast[2]	Total B.C.
January	2,415	571	208	618	3,812
February	2,448	588	206	682	3,924
March	3,295	754	233	1,042	5,324
April	3,400	770	250	1,162	5,582
May	3,603	715	239	1,270	5,827
June	3,452	752	228	1,105	5,537
July	3,896	1,109	218	1,996	7,219
August	5,336	1,283	240	2,465	9,324
September	3,975	923	246	1,711	6,855
October	3,579	820	226	1,191	5,816
November	3,038	620	176	705	4,539
December	2,424	527	176	599	3,726
TOTAL	40,861	9,432	2,646	14,546	67,485
AVERAGE	3,405	786	221	1,212	5,624

1 Includes executive, administrative and sales, processing/manufacturing operations and other related workers.

2 Includes Queen Charlotte Islands, Central Coast, and Interior regions as well as persons involved in floating processing operations north of Cape Caution.

V. AVERAGE RECOVERY RATES FOR SALMON, GROUNDFISH, OTHER FISH AND SHELLFISH

The following tables are derived from two recovery rate surveys carried out by the Ministry of Agriculture, Fisheries and Food, and original data provided by the Department of Fisheries and Oceans. The surveys were conducted as supplements to the Annual Fisheries Production Statistics census of provincially licensed fish processing facilities.

The first survey was conducted in 1985 and provided the basis for the more detailed survey done in 1989. This later survey collected recovery rate data on the farmed salmon industry for the first time, as well as information on product types, grades, and species that had emerged in the last few years.

The recovery rate is defined as the percentage of the total final product recovery in relation to round fish weight i.e. what remains after processing into a particular product type. There is loss of weight during processing due to several factors including evisceration, skinning, deboning, or in the case of smoked products and some shellfish, loss of water weight as well. Using the recovery rate, an estimate can be made of how much finished product will result from a known amount of round weight fish. For example, 100 pounds of round pink salmon will result in approximately 85.8 pounds of fresh dressed head on product as the recovery rate is 85.8 percent.

To estimate the amount of round fish that went into a particular product multiply the total weight of the processed product by the conversion factor. For example, 100 pounds of fresh dressed head on sockeye (with a conversion factor of 1.19) would have taken approximately 119 pounds of round fish to produce. Similarly, approximately 490 pounds of round skate would be required to produce 100 pounds of skinless skate wing product.

Fish, and most notably shellfish, experience varying degrees of shrinkage (water loss) from time of harvest to processing. For a few species in particular the shrinkage is significant and this information has been included where available.

For most species only one product can be derived from each fish or shellfish. There are however, exceptions. For example, one dogfish can generate a) flaps, b) backs, and c) fins and tails, and the geoduck clam can be made into both neck meat and body meat products. It therefore follows that only one of these products per species should be used for any conversions back to a round weight. Conversely, all of these products can be considered when calculating the potential product weights derived from a known amount of round fish or shellfish.

There are some products in the following tables that can not be converted back to a round fish weight. Products such as fish and herring meal and oil are derived from, and the recovery rate and conversion factors relate to, fish frames and offal rather than round fish weights.

Any other anomalies in the tables will be explained with footnotes.

TABLE 44 - AVERAGE RECOVERY RATES FOR SALMON

(Conversion Factor = 100%/Recovery Rate %)

SPECIES AND PRODUCT TYPES		RECOVERY RATE (%)	CONVERSION FACTOR
FRESH ROUND			
All Species		100.00	1.00
FROZEN ROUND			
All Species		100.00	1.00
FRESH DRESSED, HEAD ON			
Chinook	- Red	85.4	1.17
	- White	85.3	1.17
Sockeye		84.0	1.19
Coho		86.2	1.16
Pink		85.8	1.17
Chum	- Silver Brite	84.4	1.19
	- Semi Brite	87.3	1.15
	- Dark	87.9	1.14
Steelhead		85.2	1.17
FRESH DRESSED, HEAD OFF			
Chinook	- Red	78.8	1.27
	- White	78.0	1.28
Sockeye		77.4	1.29
Coho		77.0	1.30
Pink		75.4	1.33
Chum	- Silver Brite	74.6	1.34
	- Semi Brite	73.5	1.36
	- Dark	72.6	1.38
Steelhead		76.6	1.31

FROZEN DRESSED, HEAD ON		NO. 1 GRADE		OTHER GRADES	
		Rec.Rate	C.F.	Rec.Rate	C.F.
Chinook	- Red	87.8	1.14	n/a	n/a
Sockeye		87.2	1.15	88.9	1.13
Coho		86.5	1.16	81.0	1.23
Pink		85.5	1.17	81.5	1.23
Chum	- Silver Brite	84.5	1.18	n/a	n/a
	- Semi Brite	77.7	1.29	n/a	n/a
	- Dark	78.6	1.27	n/a	n/a
Steelhead		89.8	1.11	81.5	1.23

TABLE 44 - CONT'D

SPECIES AND PRODUCT TYPES		NO. 1 GRADE		OTHER GRADES	
FROZEN DRESSED, HEAD OFF		Rec.Rate	C.F.	Rec.Rate	C.F.
Chinook	- Red	77.1	1.30	76.7	1.30
	- Pink	77.5	1.29	n/a	n/a
	- White	76.9	1.30	76.9	1.30
Sockeye		78.7	1.27	79.4	1.26
Coho		78.3	1.28	76.5	1.31
Pink		76.9	1.30	75.4	1.33
Chum	- Silver Brite	75.5	1.33	73.3	1.36
	- Semi Brite	73.4	1.36	71.8	1.39
	- Dark	71.7	1.40	72.1	1.39
Steelhead		77.1	1.30	79.6	1.26

		RECOVERY RATE (%)	CONVERSION FACTOR
FROZEN STEAKS AND FILLETS			
Sockeye		67.0	1.49
Coho		67.6	1.48
All other species - see values for Frozen Dressed, Head Off.			
SALTED			
Chinook	- Red	79.6	1.26
Sockeye		78.2	1.28
COLD SMOKED			
Chinook	- Red	68.8	1.45
Sockeye		65.2	1.54
Coho		65.7	1.52
Pink		55.8	1.79
Chum	- Silver Brite	68.3	1.46
	- Semi Brite	63.9	1.56
Steelhead		66.0	1.52
HOT SMOKED			
Chinook	- Red	61.3	1.63
	- White	58.3	1.72
Sockeye		51.0	1.96
Coho		52.6	1.90
Pink		45.6	2.19
Chum	- Silver Brite	57.0	1.76
	- Semi Brite	54.0	1.85

TABLE 44 - CONT'D

SPECIES AND PRODUCT TYPES		RECOVERY RATE (%)	CONVERSION FACTOR
OTHER SPECIALTY PRODUCTS			
All species - recovery rates variable depending on product.			
OWN CANNED PACK (lb. round/48 lb. case)			
Chinook	- All species	-	73.97
Sockeye		-	67.54
Coho		-	70.77
Pink		-	75.99
Chum	- All species	-	75.15
CUSTOM CANNED PACK			
All species - see values for Own Canned Pack.			
SPECIALTY CANNED PACK			
All species - see values for Own Canned Pack.			
SALMON ROE			
The average recovery from all species of round salmon is approximately 5 percent.			
MEAL			
All species		16.5	6.06[1,3]
OIL			
All species		6.0	16.67[1,2,3]

1 Includes an unspecified amount of groundfish.

2 Based on the assumption that one gallon of oil weighs 7.5 lbs.

3 This conversion yields the quantity of waste/scrap fish required to produce the specified product.

TABLE 45 - AVERAGE RECOVERY RATES FOR FARMED FISH

(Conversion Factor = 100%/Recovery Rate %)

SPECIES AND PRODUCT TYPES	RECOVERY RATE (%)	CONVERSION FACTOR
FRESH ROUND		
All Species	100.00	1.00
FRESH DRESSED, HEAD ON		
Chinook	86.8	1.15
Coho	85.9	1.16
Steelhead	85.6	1.17
Atlantic	91.6	1.09
Freshwater Rainbow Trout	81.0	1.23
FRESH DRESSED, HEAD OFF		
Chinook	78.3	1.28
Freshwater Rainbow Trout	67.0	1.49
FROZEN DRESSED, HEAD ON		
Chinook	84.7	1.18
Coho	84.7	1.18
FROZEN FILLETS		
Chinook	62.4	1.60
Coho	61.5	1.63
COLD SMOKED		
Chinook	50.0	2.00
Coho	52.0	1.92
HOT SMOKED		
Chinook	45.0	2.22

TABLE 46 - AVERAGE RECOVERY RATES FOR GROUNDFISH AND OTHER FISH[1]

(Conversion Factor = 100%/Recovery Rate%)

SPECIES AND PRODUCT TYPES	RECOVERY RATE (%)	CONVERSION FACTOR
DOGFISH		
Dressed Head Off	45.8	2.18
Flaps	7.0	14.29
Backs	30.2	3.31
Fins & Tails	2.6	39.06
FLOUNDER		
Dressed Head Off	80.0	1.25
Fillets, Fresh	28.5	3.51
Fillets, Frozen	26.0	3.84
PACIFIC COD		
Dressed Head On	83.3	1.20
Dressed Head Off	71.9	1.39
Fillets, Fresh	26.7	3.75
Fillets, Frozen	28.0	3.57
Steaks, Frozen	71.9	1.39
HAKE		
Dressed Head Off	55.9	1.79
Fillets, Skinless	31.9	3.13
Fillets, Boneless	27.0	3.70
HALIBUT		
Dressed Head Off	75.2	1.33
Fillets, Fresh	52.0	1.92
Fillets, Frozen	60.0	1.67
Fletches	42.2	2.37
Steaks	52.8	1.89
HAGFISH		
Frozen	95.3	1.05
HERRING		
Bait	100.0	1.00
Fillets	35.0	2.86
Kippered Snacks	35.0	2.86
Kippers	35.0	2.86
Pickled	35.0	2.86
Roe (mature)	13.5	7.43
Meal	14.8	6.76[2,4]
Oil	2.6	38.46[2,3,4]

TABLE 46 - CONT'D

SPECIES AND PRODUCT TYPES	RECOVERY RATE (%)	CONVERSION FACTOR
LING COD		
Dressed Head Off, Fresh	67.0	1.49
Dressed Head Off, Frozen	72.8	1.37
Fillets, Fresh	31.0	3.23
Fillets, Frozen	29.9	3.34
Steaks, Frozen	72.8	1.37
PACIFIC OCEAN PERCH		
Dressed Head Off	65.0	1.54
Fillets, Fresh	29.6	3.38
Fillets, Frozen	29.9	3.34
POLLOCK		
Dressed Head On	88.0	1.14
Dressed Head Off	65.0	1.54
Fillets, Fresh	27.0	3.70
Fillets, Frozen	28.9	3.46
RED SNAPPER		
Dressed Head On	75.8	1.32
Dressed Head Off, Fresh	65.4	1.53
Dressed Head Off, Frozen	57.8	1.73
Fillets, Fresh	29.6	3.37
Fillets, Frozen	29.5	3.40
ROCKFISH		
Dressed Head On	85.0	1.18
Dressed Head Off	65.0	1.54
Fillets, Fresh	27.8	3.60
Fillets, Frozen	28.8	3.47
SABLEFISH		
Dressed, Western Cut	72.0	1.39
Dressed, Japanese Cut	67.4	1.48
Smoked, Dressed	46.5	2.15
Smoked, Fillets	50.1	2.00
SKATE		
Wings, skin on	45.4	2.20
Wings, skinless	20.4	4.90

TABLE 46 - CONT'D

SPECIES AND PRODUCT TYPES	RECOVERY RATE (%)	CONVERSION FACTOR
SMELT		
Dressed Head On	98.0	1.02
SOLE (General)		
Dressed	70.0	1.43
DOVER SOLE		
Fillets, Fresh	27.2	3.67
Fillets, Frozen	27.5	3.63
ENGLISH SOLE		
Fillets, Fresh	28.2	3.54
Fillets, Frozen	28.2	3.55
PETRALE SOLE		
Fillets, Fresh	32.0	3.13
Fillets, Frozen	30.0	3.33
ROCK SOLE		
Fillets, Fresh	26.0	3.85
Fillets, Frozen	25.6	3.91
OTHER SOLE		
Fillets, Fresh	28.5	3.51
Fillets, Frozen	28.6	3.49
STURGEON		
Dressed Head On, Fresh	76.7	1.30
Dressed Head On, Frozen	78.8	1.27
TURBOT		
Dressed Head Off	80.0	1.25
Fillets, Fresh	28.5	3.51
Fillets, Frozen	27.0	3.70

TABLE 46 - CONT'D

SPECIES AND PRODUCT TYPES	RECOVERY RATE (%)	CONVERSION FACTOR
OTHER FISH		
Meal	16.5	6.06[2,4]
Oil (lbs.)	2.6	38.40[2,3,4]

1 All fresh or frozen round fish are assumed to have a recovery rate 100% with a conversion factor of 1.00.

2 Includes an unspecified amount of salmon.

3 Based on the assumption that one gallon of oil weighs 7.5 lbs.

4 This conversion factor yields the total pounds of waste/scrap fish required to produce the specified product.

TABLE 47 - AVERAGE RECOVERY RATES FOR SHELLFISH[1]

(Conversion Factor = 100%/Recovery Rate %)

SPECIES AND PRODUCT TYPES	RECOVERY RATE (%)	CONVERSION FACTOR
BUTTER CLAMS		
Meat	30.7	3.26
GEODUCK CLAMS		
Live[2]	94.7	1.06
Neck Meat	19.8	5.05
Body Meat	12.1	8.25
HORSE CLAMS		
Neck Meat	12.0	8.33
JAPANESE AND NATIVE LITTLE NECK CLAMS		
In shell, Fresh or Frozen[2]	85.0	1.18
OTHER CLAMS		
Bait	100.0	1.00
Meat (as per Butter Clams)	30.7	3.26
Canned (48 lb. case)	-	180.00
CRABS		
Meat, Fresh	20.9	4.78
Meat, Frozen	23.2	4.31
Cooked	90.7	1.10
Canned (48 lb. case)	-	250.00
GOOSENECK BARNACLES		
Fresh[2]	90.3	1.11
OCTOPUS		
Bait	100.00	1.00
OYSTERS		
Meat (8 oz. container)	-	8.04[3]
Meat (16 oz. container)	-	14.06[3]
Meat (32 oz. container)	-	26.20[3]
Meat (128 oz. container)	-	115.00[3]
In shell (average weight)	-	8.6 oz.
In shell, half shell (avg. weight)	-	5.2 oz.

TABLE 47 - CONT'D

SPECIES AND PRODUCT TYPES	RECOVERY RATE (%)	CONVERSION FACTOR
PRAWNS		
Cooked, Whole	92.3	1.08
Tails	49.4	2.02
Meat	25.0	4.00
SCALLOPS		
In shell, Fresh or Frozen[2]	89.9	1.11
SEA CUCUMBERS		
Meat	14.7	6.81
Meat, dried	10.5	9.52
Average #/lb. of meat	-	8.00
SEA URCHINS - GREEN		
Roe, in trays	8.4	11.90
SEA URCHINS - RED		
Roe, in trays	7.95	12.60
Roe, in bulk	7.88	12.70
SHRIMP		
Meat, Fresh	25.5	3.93
Meat, Frozen	25.3	3.96
Canned (48 lb. case)	-	194.30
SQUID		
Bait	100.0	1.00

---

1 All live or in shell shellfish, unless otherwise noted, are assumed to have a recovery rate of 100% with a conversion factor of 1.00.

2 Based on average percent shrinkage.

3 This is not a true conversion factor as it is the average number of individuals per container.

TABLE 48 - CANADIAN CONSUMER PRICE INDEX FOR ALL ITEMS AND SELECTED FOOD ITEMS FOR 1975 - 1990

(1986 = 100)

	ALL ITEMS	FISH	POULTRY	MEAT[1]
1975	44.2	37.9	50.2	n/a
1976	47.5	41.7	51.7	n/a
1977	51.3	46.0	51.9	n/a
1978	55.9	52.4	59.6	n/a
1979	61.0	58.3	67.5	70.5
1980	67.2	66.2	70.6	78.7
1981	75.5	75.8	82.0	80.7
1982	83.7	83.0	85.6	80.9
1983	88.5	87.1	88.4	84.7
1984	92.4	91.4	93.9	87.3
1985	96.0	95.2	92.6	91.7
1986	100.0	100.0	100.0	100.0
1987	104.4	111.2	105.5	109.0
1988	108.6	120.7	106.5	109.3
1989	114.0	124.5	116.7	111.9
1990	119.5	122.5	122.4	117.5

---

1 Excludes poultry.

Source: - Canada, Statistics Canada, Consumer Prices and Price Indexes, October - December, 1984. Ottawa: Supply and Services Canada, March 1985.
- Table 8: Consumer Price Index for Canada, All Items, 1973-1984, p. 24.
- Table 9: Consumer Price Index for Canada - Main Components, Sub-groups and Selected Items, pp. 25-26.
- Personal Communication, Statistics Canada, July 12, 1985.
- Personal " " " Sept. 11, 1986.
- Personal " " " Dec. 22, 1987.
- Personal " " " Feb. 28, 1989.
- Personal " " " Nov. 14, 1989.
- Personal " " " July 16, 1991.
- Personal " " " Sept. 15, 1992.

VI. GLOSSARY OF TERMS AND IMPORTANT NOTES

LANDINGS DATA

Source of Data: All commercial fish landings or catch data is provided by the Department of Fisheries and Oceans.

Standard Form or Landed Weight:

Salmon - Troll and Handline are reported as dressed weight head-on unless otherwise specified.

- Seine and Gillnet are reported as round weight.

Halibut - is reported as dressed weight head-off.

All other fish are reported as round weight.

Round Weight: Is the weight of the whole fish as it comes from the water before any treatment or dressing.

Landed Value: Prior to 1984, salmon landed values published did not include bonus payments. Consequently, payments made to fish harvesters, particularly for net caught salmon, were under-reported. Since 1984, salmon landed value is defined as the initial payment to fish harvesters including any additional adjustments and bonuses.

MEASUREMENTS

One Metric Tonne or 1,000 kilograms (kg) equals 2,204.6 pounds (lb.).

Gallon used is imperial gallon, equals 128 ounces, and weighs 7.5 pounds.

TERMS

Over the Side Sales: Refers to co-operative fishing arrangements, or joint ventures, of Canadian fish harvesters delivering groundfish, usually hake, to foreign vessels.

Wholesale Value: Represents gross sales based upon company invoices (F.O.B. processing plant) for fish products.

GLOSSARY OF TERMS AND IMPORTANT NOTES - CONT'D

Net Selling Value: Refers to pricing information on canned salmon products and reflects the final selling price after promotions, case allowances, cash discounts and other trade discounts which may apply.

Wholesale Price: Is the average price based on the total wholesale value divided by total quantity of that product. It reflects a true weighted average price of that product, incorporating price fluctuations over the calendar year.

Salted/Mild Cured Salmon: Includes salmon products prepared by either brining or dry salting for human consumption.

Cold Smoked Salmon: Includes all products which are both brined and cold smoked.

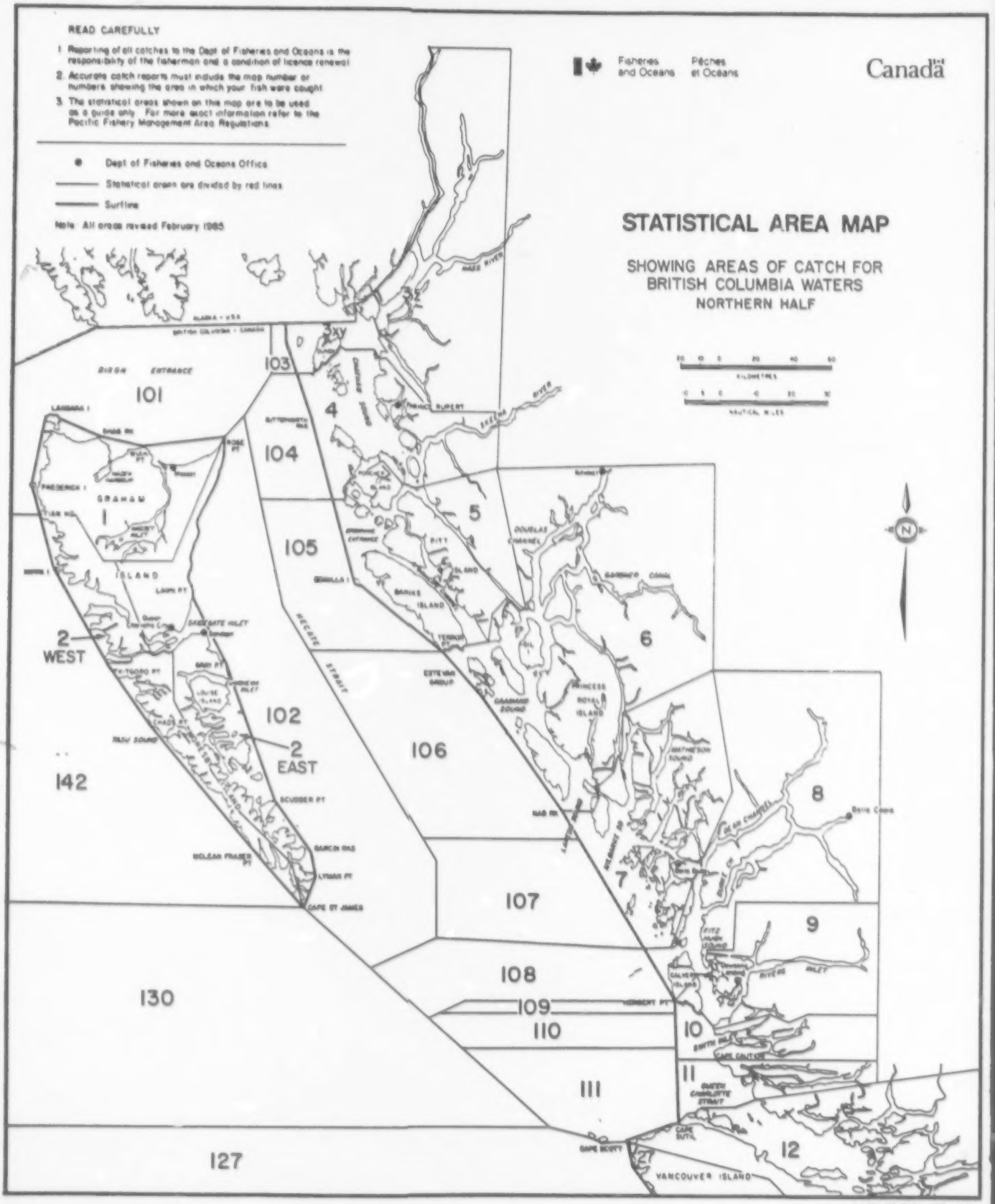
Hot Smoked Salmon: Includes products which are brined and hot smoked or cooked - may include barbequed products.

Specialty Smoked Salmon Products: Are specialty packed smoked salmon products or products which are derived from smoked salmon. These may include smoked salmon pate and butter as well as "other" products.

Portion Pack/Specialty Products: Includes specially packaged salmon products such as individual portion and food service portion packs. These may include variety of packaging technologies.

n.e.s.: Refers to not elsewhere specified.

Farm Gate Price: Is the average price based on the total farm gate value divided by the total quantity of the product. It is the total value the fish producer receives for the product exclusive of transportation and processing. It reflects a true weighted average price of the fish or shellfish, incorporating price fluctuations over the year.


READ CAREFULLY
1. Reporting of all catches to the Dept of Fisheries and Oceans is the responsibility of the fisherman and a condition of licence renewal
2. Accurate catch reports must include the map number or numbers showing the area in which your fish were caught
3. The statistical areas shown on this map are to be used as a guide only. For more exact information refer to the Pacific Fishery Management Area Regulations
Dept of Fisheries and Oceans Office
Statistical areas are divided by red lines
Surfline
Note All areas revised February 1985
Fisheries and Oceans
Pêches et Océans
Canada
STATISTICAL AREA MAP
SHOWING AREAS OF CATCH FOR
BRITISH COLUMBIA WATERS
NORTHERN HALF
KILOMETRES
NAUTICAL MILES
N
101
103
3
4
104
5
105
6
1
2 WEST
2 EAST
102
106
142
7
8
9
107
108
109
110
10
11
12
111
130
127
PRINCE RUPERT
VANCOUVER ISLAND
SIXTH EDITION FEB 1985

READ CAREFULLY

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● Dept of Fisheries and Oceans Office

——— Statistical areas are divided by red lines

——— Sailing

Note: All areas revised February 1985

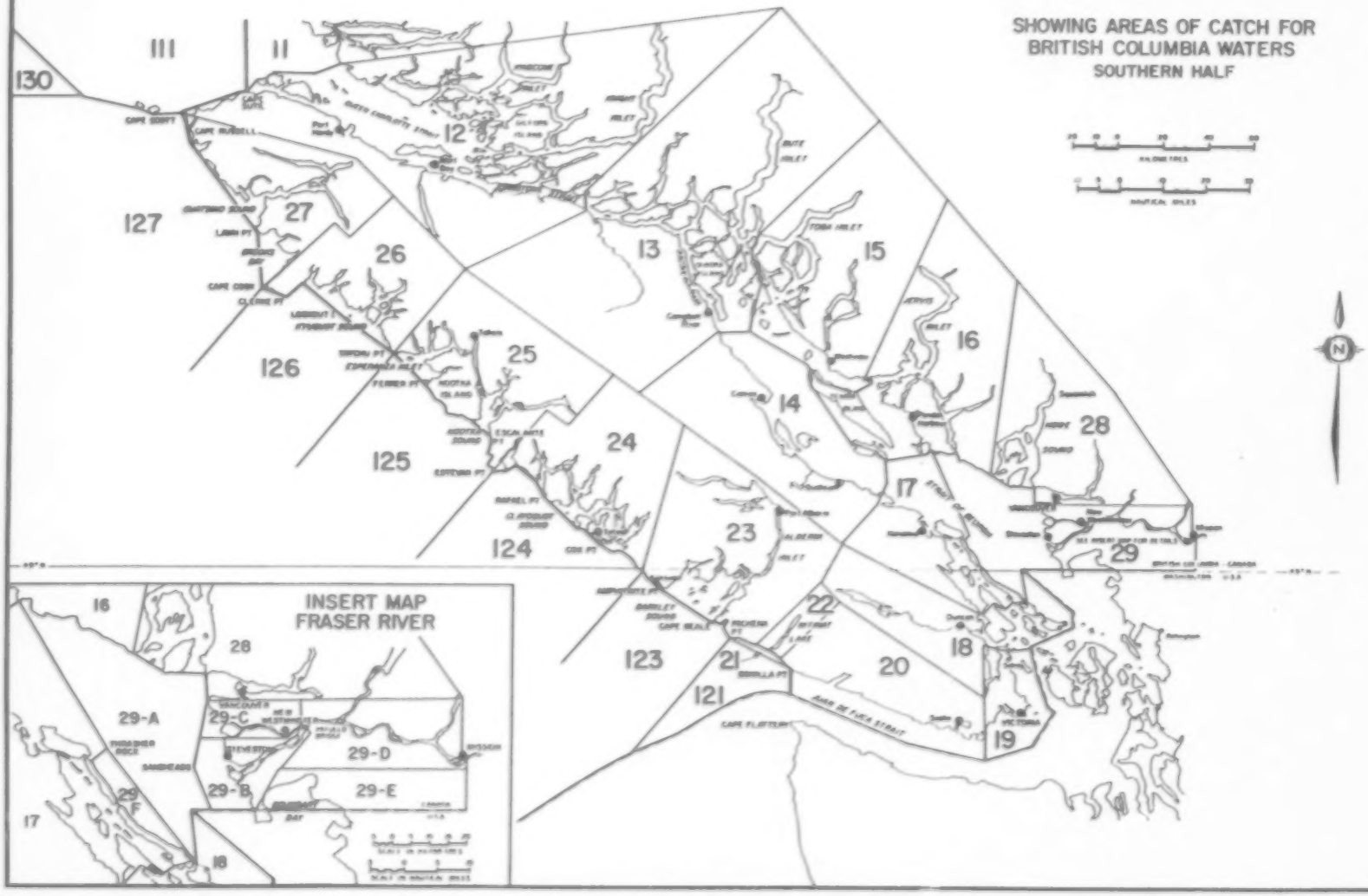
Fisheries and Oceans / Pêches et Océans

Canada

STATISTICAL AREA MAP

SHOWING AREAS OF CATCH FOR BRITISH COLUMBIA WATERS

SOUTHERN HALF



SIXTH EDITION FEB 1985

GEOGRAPHIC REGIONS OF FISH PROCESSING FACILITIES IN BRITISH COLUMBIA

Region 1 - Lower Mainland
Region 2 - Southern Vancouver Island
Region 3 - West Coast Vancouver Island
Region 4 - Northern Vancouver Island
Region 5 - Sunshine Coast
Region 6 - Central Coast
Region 7 - North Coast/Prince Rupert
Region 8 - Queen Charlotte Islands
Region 9 - Interior of B.C.

Source: Commercial Fisheries Section, Aquaculture and Commercial Fisheries Branch, Ministry of Agriculture, Fisheries and Food

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